JUNE 10, 1924

THE RUBBER AGE

VOL. XV. NO. 5

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THE RUBBER AGE

The Only Twice-a-Month Rubber Publication

VOL. XV. JUNE 10, 1924 No. 5

EXPORTS OF RUBBER GOODS ROSE IN APRIL

Value of American Rubber Products Shipped in April was $3,412,170 as Compared with $3,365,709 in March—113,135 Tires Exported

Aided by increased exports of automobile casings, higher export prices for tires and several other classes of rubber goods, and record breaking shipments of mechanical rubber goods and soles and heels, the value of American rubber products shipped to foreign countries during April, $3,412,170, registered a slight increase over March when the value was $3,365,709. This, says the Rubber Division of the Department of Commerce, is a continuation of the upward trend which has prevailed since the end of 1923.

While the value of export shipments for each month this year has been lower than for the corresponding months of 1923, principally because of reduced tire exports, evidence in the form of tire price increases during March and April in several markets now points towards recovery in the trade. During April, 113,135 automobile casings were exported, the average unit value being $12.40, as compared with 102,240 casings at a unit value of $11.29 in March.

Mexico and England were the only markets taking over 10,000 casings, while Sweden, Canada, Cuba, Japan, Australia, and New Zealand ranged downward from 9,000 to 5,000, and Denmark, Spain, Brazil, Peru, the Philippine Islands, and British South Africa each took from 4,000 to 2,000. The continued heavy shipments to Japan are especially noteworthy. Only 90,896 automobile tubes were exported in April, as compared with 97,338 in March, but the value per tube in April, $2.01, was 35 cents higher than in March. Exports of solid tires for trucks declined from 11,247 in March to 8,068 in April, without any significant change in unit values.

April shipments of mechanical rubber goods set a new record. The amount of rubber belting exported, 342,331 pounds, has been exceeded in only one previous month (May, 1923) when shipments totalled 385,175 pounds. The value per pound of belting exports which averaged between 58 cents and 59 cents the first three months this year, advanced to 62 cents in April. Exports of rubber hose, 446,767 pounds, and rubber packing 195,909 pounds, established high records for monthly shipments.

Exports of rubber footwear are experiencing the usual seasonal dull period. Rubber boots to the amount of 23,055 pairs, and 53,300 pairs of rubber shoes were shipped from American ports in April. Newfoundland, England, New Zealand, Canada, and Sweden were the principal purchasers of rubber boots.

TAX ON TIRES CUT TO 2 1-2%

As predicted by THE RUBBER AGE some months ago, President Coolidge signed the tax bill June 2, declaring that the measure, although not a good one was the best that could be passed before Congress adjourned, and was an improvement on the old law. In addition to reducing numerous other taxes, the new Federal law reduces the tax on tires and accessories from 5 to 2 1-2 per cent. The General Tax Committee of the Rubber Association did much to secure the tax reduction embodied in the new law. This committee consists of F. C. Van Cleef, chairman, B. F. Goodrich Co.; E. S. Kochersperger, Hood Rubber Co.; C. F. Stone, Goodyear Tire & Rubber Co.; Kennedy M. Thompson, United States Rubber Co.; and T. F. Walsh, Swinehart Tire & Rubber Co.

NAME RECEIVER FOR McLEAN TIRE & RUBBER

C. H. Beatty was recently appointed receiver under bond of $25,000 for the McLean Tire & Rubber Co., East Liverpool, Ohio. The petition presented to the court by counsel for the plaintiff, W. H. Davis, alleges that the company has ceased active business because of its inability to provide sufficient liquid assets to operate the plant. It is further alleged that the last general audit of the books showed assets of $647,000 and indebtedness of $360,000.

Judge James G. Moore in Common Pleas Court at Salem, Ohio, appointed Frank H. Grove, J. S. Hilbert and Lawrence L. Cawood appraisers.

SALES AND PRODUCTION GOOD FIRST QUARTER

But Earnings Show Little Gain Over Same Period in 1923 Due to Reduced Prices—Mechanical Rubber Goods Selling Well—Footwear Sales Unsatisfactory

Despite all the talk we hear about bad times, sales and production in the rubber industry for the first quarter compare favorably with the same period in 1923. Until recently tire production was carried on in great volume and curtailments reported a few weeks ago by most of the larger Akron companies are but seasonable. However, earnings show little gain due to the revision of prices that were put into effect last fall. Increased profits on balloon tires, increased original equipment prices and the slump in crude material quotations, are factors that tend to offset these losses.

It is reported that the falling off in sales of automobiles has had but little influence on the sale of tires as most tire dealers were carrying light stocks. Demand for mechanical rubber goods has held up well except on the Pacific Coast where the lessened activity of the oil companies effected sales to some degree. Sales of hard rubber goods show no decrease as the demand from radio manufacturers is maintained by public interest.

Footwear, when compared with the volume of business done last winter, showed a decrease of nearly 15 per cent, with a number of New England factories working only a few days a week. Sales, however, of rubber-soled outing shoes, both of canvas and leather, are expected in some quarters to be sufficiently heavy this summer to partly offset the condition caused by a mild winter. Production of raincoats is said to equal that of last year and fall commitments are heavy. Garden hose sales are reported equal to those of 1923.

The rubber industry in Trenton is on a two-thirds basis, reports from a majority of the manufacturers in that district indicate. Part of the slump from peak production is that experienced with the approach of warm weather, a portion is laid at the door of the elusive "presidential year" bogy, and blame for the remainder of the discrepancy properly belongs to the long continued spell of wet weather.

OFFERS HELP TO RUBBER EXECUTIVES ON BENZOL

The Rubber Section and Chemical Section of the National Safety Council have for some time had a committee investigating the hazards of benzol in American industries. This committee is headed by Prof. C. E. A. Winslow of Yale Medical School.

This committee is now putting into the field a physician and an engineer to study the actual conditions in factories and to determine means for preventing benzol poisoning, and is eager to obtain the cooperation of various industries, and in particular of rubber manufacturers who use benzol to a considerable extent.

Rubber manufacturers having cases of illness among their employees of which benzol is suspected to be the cause are urged to write to Prof. C. E. A. Winslow, of Yale Medical School, New Haven, Connecticut, who will send either the committee's physician or engineer to cooperate with the manufacturer in treating existing cases and preventing further cases of benzol poisoning. This cooperation will be entirely without expense to the manufacturer.

"MARGINAL" PRODUCER ONLY BUSINESS MAN IN DANGER, SAYS INDUSTRIAL DIGEST

The lack of profit from the present large volume of business, which is the real basis of most of the complaints heard in commercial circles, is in part due to the unsettled political situation and in part to high labor costs. But under all this there is the fact that the most pressing demands for materials to make good the neglect of equipment during the war have now been satisfied and the country is settling down to the struggle which will determine how much of the excess production capacity created during the war is really needed to meet the peacetime requirements of the country. Such struggles for the elimination of the "marginal producer," the one who can make a profit only under abnormal conditions, always means ruthless competition, but the survivors of the struggle find themselves in much stronger positions when the battle is over. The manufacturers who first recognize the existence of this struggle and prepare to defend their positions by perfecting production methods and cutting sales costs stand the best chance of survival.—*Industrial Digest.*

To Reopen Suit

The Asbestos Rubber Works of New Jersey, Camden, has applied to the Court of Errors and Appeals, Trenton, for a rehearing in the action brought by it against the Thermoid Rubber Company of Trenton and the Johns-Manville Company of Bound Brook seeking an accounting of royalties on all sales of brake linings and brake band linings manufactured by the defendant concerns under patent rights held by the plaintiff. The action covers the past several years, two court hearings already having brought findings favorable to the plaintiff.

Roebling Celebrates Birthday

Colonel Washington A. Roebling, president of the John A. Roebling's Sons Company, manufacturers of insulated cables, Trenton, N. J., celebrated his 87th birthday May 27. The Colonel plans to be one of the 561 employes of the Roebling company with a service record of 25 years or more who will be guests at the Community Banquet to be held in Trenton some time in June.

Greengate May Open Branch

A representative of the Greengate & Irwell Rubber Co. Ltd., Salford, England, has come to South Africa to examine the possibilities of establishing a branch factory in the Colony. At the present time the company is doing a big trade with South Africa, and, according to a press interview, they do not wish to risk losing it through the operation of any tariff barriers which may be erected to protect the South African rubber manufacturing industry. The Greengate & Irwell Rubber Co. manufactures various kinds of mechanical rubber goods, rain coats, tennis shoes, cables, and kindred lines.

Announces Temporary Shutdown

Notices posted recently in the Alice, R. I., and the Millville, Mass., plants of the Woonsocket Rubber Co. were to the effect that these two plants would suspend operations from June 27 to August 4. About 1900 employees will be affected by the shutdown. The Woonsocket company is a subsidiary of the United States Rubber Co.

Ruffenacht Adds Machinery

The Ruffenacht Rubber Co., Bucyrus, Ohio, which for the past two years has been manufacturing only a 30 x 3½ fabric casing, has begun production of cord tires in all popular sizes. According to P. Heater, secretary, the balance of the new machinery required has been installed in the plant and 350 cord tires a day are being manufactured, in addition to the 30 x 3½ fabric tires.

To Welcome Pan Americans

President Coolidge, four members of the Cabinet and the diplomats of the 21 countries in the Pan American Union will join with other government officials in welcoming the Pan American Highway Commission to this country upon its arrival in Washington. The visit of the highway commission is under the direction of the Highway Education Board on which Harvey S. Firestone, president of the Firestone Tire & Rubber Co., represents the rubber industry.

Seeks Argentine Agency

The Editor has received a letter from one of our readers in Buenos Aires who is interested in representing American rubber manufacturers in the Argentine. He states that at the present time he represents important European and American firms and is well-known and familiar with all the necessary details of foreign representation. He is especially interested in representing manufacturers of hot water bottles, ice bottles, rubber gloves for medical and household use, syringes, irrigators, rubber sheets for hospitals and other rubber articles for industrial and medical use. He has furnished a number of bank and commercial references which will be sent to any of our readers who are interested.

Ideal Tire Reorganized

At a recent meeting at the Hotel Winton, Cleveland, stockholders of the Ideal Tire & Rubber Co. voted to reincorporate with 50,000 shares of common stock of no par value. O. L. Brown, an industrial engineer, has been chosen to undertake the work of refinancing the company. The following directors were elected: D. T. Holliker, G. Smith Kennedy, Fred Bigler, A. A. Parker, A. G. Cowder, F. C. Thorton, J. A. Parfitt, W. W. Wheeler, Herman Nass, John Schimmelman, S. T. Walker, C. A. Eckley and William Harrison.

To Rebuild Central Plant

A group of Toledo, Ohio, business men whom Charles L. Kintner, manager of the Central Rubber Reclaiming Co., interested in the proposition, recently acquired the plant of the company at Defiance, Ohio. This plant was considerably damaged by fire August 19 last but construction of a one-story brick building, 64 by 24 feet for a boiler room and rearrangement of the three-story wing has begun. Production of hard rubber dust and hard rubber sheet will begin as soon as possible.

Fisk May Build in Los Angeles

While sojourning at the Los Angeles Biltmore, H. T. Dunn, president of the Fisk Rubber Co., Chicopee Falls, Mass. intimated that his company may be induced to build a plant in Los Angeles, Cal. He declared that he had found business particularly good in the south and southwest.

PENNSYLVANIA ELECTS AT ANNUAL MEETING

Herbert DuPuy Heads Board—Promotion of Lee R. Hurlburt to Development Manager, and Earl W. Booz to Factory Manager Anounced

At the annual meeting of the stockholders of the Pennsylvania Rubber Company, Jeannette, Pa., held May 12, the following directors were elected for the ensuing year: Herbert DuPuy, Charles M. DuPuy, George W. Daum, A. H. Price, George W. Shiveley.

The directors subsequently re-elected the following officers: Herbert DuPuy, Chairman of the Board; Charles M. DuPuy, President; George W. Daum, Vice President-General Manager; A. H. Price, Treasurer; George W. Shiveley, Secretary; C. G. Morrill, Assistant Treasurer.

Two promotions in the factory personnel were announced as follows: Lee R. Hurlburt, Development Manager; Earl W. Booz of Greensburg, Factory Manager.

Mr. Booz began his business career as chemist at the American Vanadium Company, Bridgeville, Pa., moving from there as chemistry teacher in the Greensburg High school, which position he held from 1912 to 1917. During the summer vacations, he worked in the Chemisty Department of the Pennsylvania Rubber Company, and in 1917 gave up his teaching and went with the company as Chief Chemist, graduating from that into the position of Assistant Production Superintendent. His training has placed him in position to take charge of the factory in a capable way.

Mr. Hurlburt went to the Pennsylvania company from the B. F. Goodrich Rubber Company of Akron, Ohio, about ten years ago, to take charge of the Drafting Department. He has since occupied the positions of Assistant Engineer, Assistant Production Superintendent, and for the past three years Production Superintendent. He has developed some of the very important labor saving equipment now being used in the factory. His future work along these lines is expected to be productive of machinery which will keep pace with the highly competitive conditions in the industry.

U. S. Promotes Reeves

J. Nelson Reeves, who has been in the export department of the United States Rubber Co. at New York City, has been appointed assistant manager of the Mexico branch, located at Mexico City. He will leave New York June 15 to take the post.

U. S. Plants to Shutdown

The Boston Rubber Shoe Co., Malden, Mass., a subsidiary of the United States Rubber Co., announced recently that its factories both at Malden and Melrose would shut down from June 27 to Aug. 4. About 800 employees are affected by the order.

TIRE DEALERS INDICTED FOR FRAUDULENT ADS

Following the indictment by the grand jury in Worcester, Mass. of Sam Pass, a mail order tire dealer, alleged to have used the mails to defraud in advertising second-hand tires as new or rebuilt goods, Post Office inspectors issued fraud orders against the following tire companies, all charged, like Pass with fraudulent direct mail advertising: Ross Tire Co.; Low Price Tire Co.. and Mail Order Tire Co.; all of 1526 South Wabash Avenue, Chicago, Ill.

The National Vigilance Committee of the Associated Advertising Clubs of the World recently began a campaign against the practice of advertising second-hand and factory seconds as new and standard products. Media used have included newspapers, general magazines and direct mail material. The first gun was fired in Boston, Mass. by the Boston Better Business Bureau which brought about the indictment of Max Katch of the Merchants' Tire Co.

Renown Rubber Expands

New drying racks and dipping machines are being installed in the plant of the Renown Rubber Co., in Bryan, Ohio, manufacturers of toy balloons in order that a daily production of 40,000 balloons may be attained. Present facilities only allow of 30,000 a day and orders have been so plentiful, according to reports, that additional capacity is necessary to take care of the increasing business.

HOOD RUBBER CO. SHOWS SALES OF $28,249,000

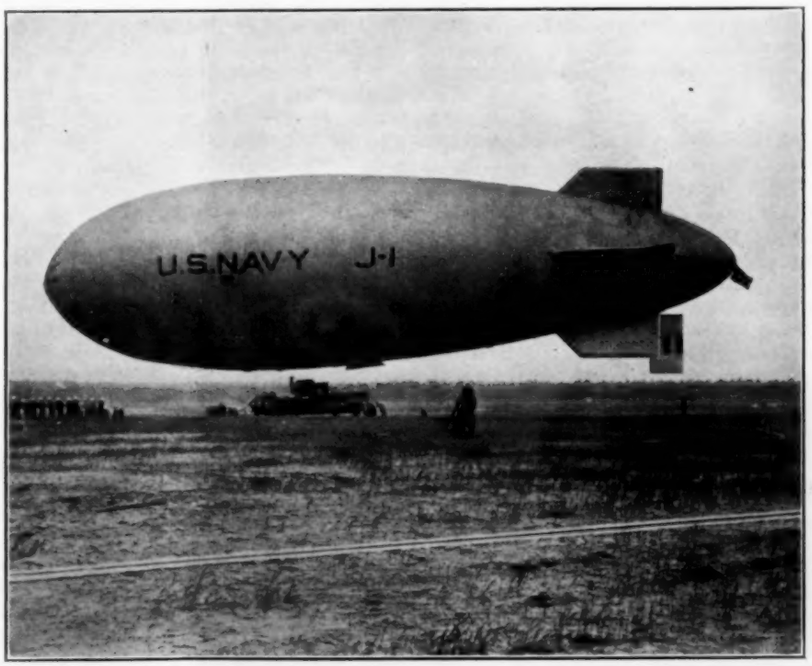
Earns Common Dividend in Fiscal Year Ended March 31 with Margin of $347,000 Despite Adverse Conditions

Despite depression in the tire end of the industry that prevented the Hood Rubber Co., Watertown, Mass., from showing more than nominal profits and a winter so mild that sales in footwear were appreciably cut, the company earned common dividends with a margin of $347,000 in the fiscal year ended March 31. Net earnings were equivalent after preferred dividends to $6.90 a share on the 12,000 shares of no par value common stock.

Total sales were reported as $28,249,000, comparing with sales the previous year of $29,343,000. Tire sales for the fiscal year were $700,000 less than for 1923 but this decrease was counterbalanced by a gain in the hard rubber and heel departments. Tire sales amounted to 26% but footwear was 66% of total sales.

The Consolidated balance sheet shows total assets of $24,721,339; cash $1,240,930; notes payable $2,892,500; and profit and loss surplus $1,714,576, comparing with $1,529,367 on March 31, 1923. Current assets are more than 4½ times current liabilities.

It is said that a part of the proceeds of the recent $1,600,000 issue of preferred stock was put into labor-saving devices so that the company could make a satisfactory profit on present tire prices.



International Newsreel

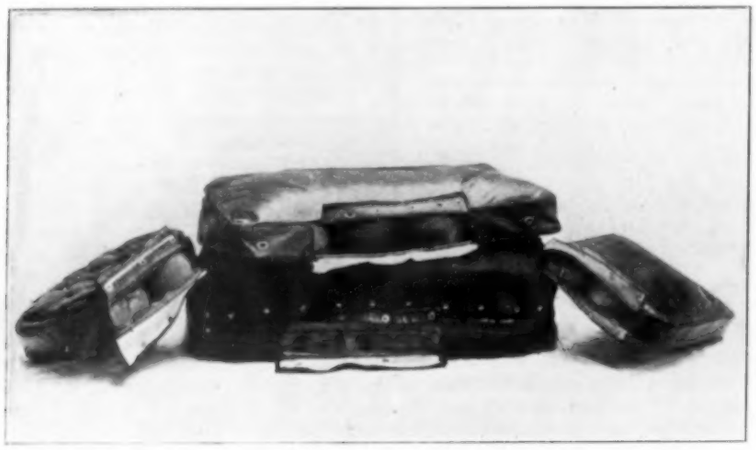
Goodyear Navy Dirigible Makes First Flight

New Navy Dirigible Built by the Goodyear Tire & Rubber Co. Recently Took from the Lakehurst, N. J., Naval Air Station. The Dirigible is of the Non-Rigid Type. 186 ft. Long and Uses Helium Gas.

RUBBER CAR UPHOLSTERY INTRODUCED IN ENGLAND

(Special to THE RUBBER AGE*)*

The pneumatic upholstery system recently introduced in Great Britain is now being applied with conspicuous success to automobile seats. This is undoubtedly an outcome of the present vogue for balloon tires and may best be described as "balloon" upholstery. Manufacturers of the new pneumatic upholstery are urging motorists to fit out with it, thereby gaining any extra comfort available with balloon tires, but without the expense. The advantage of applying the low pressure suspension principle to the cushion rather than to the tire is obvious, since the cushion is not subjected to the hard trials that are inseparable from tires. A disadvantage, however, is found in the fact that the cushion does not relieve the chassis of vibration, but in practice it has been found that most motorists are human enough to regard their own comfort as of more value than the safety of their machine.



Rubber "Springs" in These Cushions

Old Automobile Cushions (with the exception of the one on the left) Made Unusually Comfortable with Rubber Air Containers

Pneumatic upholstery differs entirely from the ordinary air-bag cushion in that the tube, being only slightly inflated, checks the flow of air from one part of the cushion to another. Thus, when pressure is applied on one part of the cushion the air is not driven from the point of contact, and perfect insulation is achieved. Known as the "float-on-air," this method of upholstery consists of a rubber tube or tubes specially arranged and secured so that they lie in folds within the outer cover. These folds run from front to back and provide a buoyant and comfortable seat. Any weight carried is borne evenly by the folds of the tube in that particular portion of the cushion. Under very heavy pressure, with correct inflation, the air is only displaced very slowly from the point of compression to the outside folds. The principle of the system does not depend upon hard inflation, in fact the tubes require to be only just sufficiently filled to support their load, and give maximum comfort.

Pneumatic cushions of this construction are said to provide complete protection from road shocks and engine vibration and are free from rebound, feats which are impossible with metal spring upholstery. Moreover, they are sanitary and offer no space for dirt and dust to collect; also they are lighter than ordinary cushions and retain their shape indefinitely as there are not any springs to settle after constant use.

A novel introverting tube valve is fitted to each tubular interior and this contains a valve stem so that inflation is done by an ordinary motor pump. To inflate, the valve is simply withdrawn from the section of the tube, and after inflation it is pushed home until the dust cap lies flush with the surrounding surface. There is no projection to chafe the inside of the cushion covers. A great advantage to users of automobiles with ordinary seats is that these do not need to be discarded, as they can easily be converted to the pneumatic upholstery system (as shown by the illustration) at a minimum of expense.

From the above it will be seen that pneumatic upholstery possesses all the shock-absorbing qualities inherent in the balloon tire without some of its disadvantages.

New Machinery for Lambert

Additional equipment is being installed in the plant of the Lambert Tire & Rubber Co., Kenmore, Ohio, in order to increase production facilities. The company manufactures a cushion tire for use on passenger cars, in all sizes from 30 x 3½ to 36 x 5 and at this writing was turning out 600 a day. It is said that the new machinery will enable it to produce 200 additional tires a day. According to G. M. Collete, general manager, 25 per cent of the Lambert tires are sold in England where 348 out of the 354 Ford agencies in that country are supplied.

GRASSELLI CHEMICAL NAMES THREE LICENSEES

The Grasselli Chemical Co., Cleveland, Ohio, has issued a circular to the trade dealing with the patents of Hofmann and Gottlob, Nos. 1,126,469 and 1,149,580 which are the property of the company. The claims of these patents cover broadly the use of rubber vulcanization accelerators of such nitrogenous bodies as result from the action of aldehydes upon ammonia and its derivatives, as well as the methylene bases and such other nitrogenous bodies as have a dissociation constant greater than 1 x 10 and a basic reaction at the vulcanization temperature.

They include hexamethylenetetramine, acetaldehyde ammonia, methylene aniniline, ethylidene aniline (or other condensation product of acetaldehyde and aniline), methylene-para-toluidine, diphenyl-guanidine, triphenyl-guanidine, para-phenylene-diamine, piperdine and its derivatives, and others.

Unless authorized by the company, it regards the use of the above rubber vulcanization accelerators as an infringement of its patents. Rubber manufacturers may obtain the right to use such products only by buying them from the Grasselli company or from licensed firms, a list of which follows: diphenyl-guanidine and other di-substituted guanidines only—Dovan Chemical Co.; Perth Amboy Chemical Works, Roessler & Hasslacher Chemical Co.; all of New York, N. Y. Hexamethylenetetramine as well as other accelerators falling under the Grasselli patents may be purchased from the Perth Amboy Chemical Works, New York City, or its selling agent the Roessler & Hasslacher Chemical Co., New York City.

Dunlop Adds "Clipper"

A normal-sized clincher, to be known as the Dunlop Clipper, has been added to the Dunlop line, according to an announcement recently made by E. H. Kidder, general sales manager for the Dunlop Tire & Rubber Company, Buffalo, N. Y.

Although the Dunlop Clipper has only recently been offered to the trade by the American Dunlop works, it is widely known in other parts of the world, having been a featured tire name for a number of years by Dunlop England, Dunlop Canada, Dunlop Australia, Dunlop South Africa, and the several other works of the Dunlop company.

The tire, in appearance, is similar to Dunlop Standard Pneumatics and Dunlop Balloons save that the tread blocks are of a slightly different design.

The name Clipper was selected by Dunlop England because in that country the term brought to mind, ships that were famous for the unusual speed they attained.

Awarded Brussels Diploma

According to T. W. Miller, president of the Faultless Rubber Co., Ashland, Ohio, who was a speaker before a recent meeting of Rotarians, the company's surgical rubber goods were awarded a diploma of honor at the Sixth International Rubber Exhibition, Brussels.

HOUK RUBBER SEEKS TO BUY TUSCORA PLANT

H. S. Houk, the Houk Rubber Co., Akron, Ohio, and others have begun negotiations for the purchase of the Tuscora Rubber Co. plant at Denver, Ohio, now in bankruptcy. General creditors of the defunct company are being offered 25 cents on the dollar by representatives of Mr. Houk who seeks to buy preferred claims amounting to approximately $280,000.

Plans include the formation of a new company with a capitalization of at least $250,000, which amount is considered sufficient to begin production at the plant and provide working capital. The Houk brand of tires will be manufactured in addition to hard rubber battery boxes, should the deal go through, it was intimated. Other mechanical rubber goods may be manufactured later.

The company will be organized in Dover and New Philadelphia with a large part of the funds being supplied by Mr. Houk. It was said that there will be no general stock sale, no bonuses and no commissions paid. A local board of directors will be selected and the Houk technical, production and office force will be sent to Dover.

If outstanding claims can be purchased at figures low enough to justify refinancing, the sale will be arranged throuh Federal District Court at Cleveland. It is said that Mr. Houk is the only bona fide bidder to appear thus far.

1924 R.A. Year Book Issued

The Twenty-Fourth Year Book of the Rubber Association of America, Inc. was recently distributed to members. Officers and Directors of the Association since its organization in 1900 are published in the Year Book. Firm members include 184 rubber manufacturers and reclaimers and 52 crude rubber brokers and dealers. Affiliated members number 64.

Dunlop Dealers to Elect

The St. Louis district of the Dunlop Dealers' Association will hold its second meeting, and elect officers, sometime during the middle of June. When the merchants met at the Hotel Statler in April, and organized themselves into a dealer body, it was decided to hold the regular business meeting.

At the April meeting many topics of importance to Dunlop merchants were discussed, among them being the balloon tire question, better merchandising methods, and acceptance of the suggestion of Braun-Doyle-Ammon, Dunlop Truck tire merchants, to act as brokers, and accept broker's commission for truck tire business sent that firm.

The association fully endorsed the suggestion that it advocate Dunlop balloons to fit present rims, it being pointed out that by doing this its members would not only cash in on the present big demand for doughnut type tires, but would protect their customers against any standardization of wheels and sizes automobile manufacturers may make in the future. In short, by endorsing balloons to fit present rims, they felt their customers are saved the expense of wheel changeover, enjoy the increased riding qualities of the low pressure tire, and in addition do not run the chance of having their complete changeover outfit become obsolete over night.

H. H. Halloway of the Pana Tire & Tube store, Pana, Ill., was appointed chairman pro-tem. He will call the June meeting.

Ajax Moves Northwest Branch

The Northwest factory branch of the Ajax Rubber Co. has removed its offices and salesrooms from 905 Marquette Ave., Minneapolis, Minn., to larger quarters at 1221 Harmon Place. The Minneapolis branch, which is under the management of J. S. Taylor, serves the territory comprising the states of Minnesota, North and South Dakota, Montana, and certain sections of Wisconsin and Michigan.

Home of the Wembley Rubber Displays

The Palace of Industry at the British Empire Exhibition at Wembley Park, London, where the Principal Displays of Rubber are Housed

Pharis Rubber Busy

Officials of the Pharis Rubber Company, Newark, Ohio, state that their plant is now operating on a 24-hour basis with three shifts. More than 1100 tires and 1000 tubes are being produced each day, of which about one-third is balloon tire production. About 300 men are now employed at the Pharis plant which, it is said, has been running to capacity for over a month.

New Rubber Fabric for Corsets

What is said to be a greatly improved rubber fabric named "Secretex" has recently been the talk of New York corset manufacturers. In the opinion of these manufacturers the fabric threatens to upset the favor that Para reducing corsets have so long enjoyed. It is claimed that the new rubberized fabric is more durable than rubber garments, that it will not stretch out of shape but will return to its original size over night; that sewing or altering will not in any way effect its resiliency; and that it can be washed and dried in ten minutes.

The name of the manufacturer of the new fabric was not divulged but it is thought to be one of the smaller rubber companies. The fabric is a champagne color and is composed of loosely woven material coated on both sides with rubber.

Scioto Leases Plant

The Scioto Rubber Co. recently leased the plant of the Chillicothe Tire & Rubber Co., Chillicothe, Ohio, and will soon begin the production of "Joy" self-mending tubes, the invention of Walter Kline, plant manager. The tube is a corrugated one lined with a rubber composition which enters the puncture and is said to effectively seal it automatically.

Frank J. Holliday, president; Earl Woodford, sales manager; and Mr. Kline recently opened the plant. The latter, who was formerly connected with the Chillicothe Tire & Rubber Co., stated that the inner tubes will be the only product manufactured for the time being.

Lee Shows First Quarter Loss

The Lee Tire & Rubber Co., Conshohocken, Pa., including subsidiaries, recently reported a net loss of $112,217, after interest and depreciation, for the first quarter of 1924. This compares with a net profit of $129,953 in the first quarter of 1923.

U. S. RUBBER REPORTS FIRST QUARTER SALES

Profit of $350,000 Shown for First Three Months—Tire and Footwear Sales Improve — Predict Even Better Second Quarter

Although sales in the rubber industry for the first three months of the year are usually light in comparison with other quarters, the United States Rubber Co. reported profits of $350,000 on tire sales. The preferred dividend was covered with a good margin despite the depression in general business which undoubtedly affected mechanical goods sales. The improvement is so pronounced that officials of the company confidently predict that sales in the second quarter will show a profit of $500,000 on tire sales.

For some time efforts have been concentrated on the tire department in which the United States company has an investment of approximately $30,000,000.

Thus far the floating debt of the company has not been increased above the $38,000,000 bank loans shown at the beginning of the year.

SUGGESTS STANDARDIZED BOX FOR INNER TUBES

In a recent letter to THE RUBBER AGE, M. E. Palmer, a progressive tire dealer of Topeka, Kansas, suggests that as a matter of economy for both dealers and manufacturers that a uniform inner tube box of standard size and shape be adopted. Mr. Palmer believes that the Rubber Association and the National Tire Dealers' Association could work out this matter to the satisfaction of both dealer and manufacturer. He prefers the long box similar to that used by the United States Tire Co., and as a second choice, one similar to that used by Goodyear.

Mr. Palmer points out that dealers could then purchase or build a permanent tube rack with the knowledge that it would properly accommodate any make of tube he might desire to handle. Tubes could then be stocked in such a way as shoes so that the boxes would completely fill the shelves.

"By the use of the long box shelves could be made to accommodate but one tier depth of tubes," wrote Mr. Palmer. "This would also greatly facilitate a daily count of total tubes on hand, received and sold, as well as for regular inventory purposes at end of month. If square boxes are used, two tier depth shelving might be used but where more than one depth of any stock is shelved it usually leaves room for errors in counting the back tiers which may or may not be full.

"It would also seem only fair to the dealer and not unfair to the manufacturer if a space be provided on the front end of the box which might or might not be used by the dealer at his pleasure for his own label or rubber stamp which would show who had sold the tube, same as is provided on many shoe boxes.

"Shelving could be used like modern shoe shelving, alike from the floor up with no ledge to lay things on, with the result that goods would have to be put back in place since there would be no place to lay them. If the stock carried was sufficient to require a very high shelving a track ladder would be very convenient.

"If this is given the right publicity manufacturers and dealers associations would no doubt take hold of it and in due time work out a uniform box which would benefit both in many ways and be while even a small thing appreciated by every one in the business.

"Manufacturers sometimes change size and shape of boxes and dealers change from one make to another so they all have had this same experience or if they have not they will have it and it seems it could be avoided and at the same time save money also."

TO STUDY TRAFFIC HAZARDS

Statisticians of nation-wide prominence have accepted invitations from Herbert Hoover to cooperate in making a study of highway traffic accidents and to formulate plans whereby facts concerning accidents may be presented in such a manner as to find a ready solution. These statisticians include Dr. Louis I. Dublin, Harold Gordon, J. C. Long, M. O. Lorenz, E. J. Murphy, J. O. Ott, J. H. Parmelee, Ethelbert Stuart, and Prof. J. C. Stuart. The chairman of the committee is W. M. Steuart and the secretary, W J. Cox. The assistance of local and unofficial groups in many localities will also be sought. Secretary of Commerce Hoover will be glad to receive the assistance of any rubber executive who has made a study of traffic problems in connection with his work.

Issues Rubber Graphs

F. R. Henderson & Co., Inc., 250 West 57th St., New York City, crude rubber brokers and dealers, recently issued its interesting rubber graphs which show the rise and fall of important commodities from 1920 to 1923, inclusive, and in one case from 1907 to 1923. The graphs are printed one to a page in loose leaf form for ready reference. They include the price of ribbed smoked sheets at New York; world production of all rubbers; total exports of all grades; monthly exports of plantation rubber; cumulative imports U. S. all grades; estimated world consumption; the price of rubber versus index of commodity prices; production of tires; monthly production of tires; monthly production of casings, inner tubes and solids; and others.

MASON BROTHERS QUIT MASON TIRE & RUBBER

O. M. Mason, President and D. M. Mason, Treasurer, Resign from Company They Were Instrumental in Organizing in 1915—New Board Announced

It was announced May 29 that O. M. Mason and D. M. Mason have resigned as president and treasurer of the Mason Tire & Rubber Co., Kent, Ohio.

O. M. Mason is succeeded by W. A. Cluff, former secretary, who now becomes president and treasurer.

Ill health was the cause of the resignation of D. M. Mason, according to the announcements. The former president also decided to retire when he learned of his brother's plans, he declared.

The new president joined the Mason Tire & Rubber Co. in 1917 as a special accountant. Soon after this he was made assistant treasurer and was elected secretary in 1918.

Colonel H. P. Shupe of Cleveland and T. G. Graham, factory manager, fill the vacancy on the Board of Directors. The new board consists of W. A. Cluff, president; J. H. Diehl, vice president; T. G. Graham, secretary; H. P. Shupe, Cleveland; Francis M. Brooke, Philadelphia; R. S. Hyney, Chicago, and L. C. Thaw, New York.

The Mason Tire & Rubber Co. was organized in 1915 with the two Mason brothers the main backers of the move. The first tires from the factory were turned out in 1916.

Starting with a capital of $250,000, its assets are now $10,000,000, with 10,000 stockholders.

The company employes 1000 men and the present output is about 2300 tires at the Kent factory and 1200 at the Bedford plant. The capacity of the two plants is 6000 tires daily.

The new president is optimistic and predicts that last year's deficit of $535,000 will be turned into a profit.

April sales, originally reported at $953,000, totaled $958,000 on the final statement, with net profits for the month of $42,000 after all charges, including depreciation, bond interest, etc., or considerably in excess of preferred dividend requirements. May sales and profits will show further improvement. Gross sales have increased from $300,000 during the month of November to a total of over $3,500,000 for first four months, or an average of about $900,000 per month this year, or at the annual rate of $10,800,000 as against $7,000,000 in 1923. The company's financial position is most satisfactory, the ratio of current assets to current liabilities being about 2½ to 1.

Finnish Duties on Rubber

Rubber, gutta percha and balata, unmanufactured, are imported duty free into Finland, according to a recent circular of the Rubber Division. With but two exceptions, the Finnish import duties on rubber goods are the same for all countries. Special Circular No. 400 may be had by applying to the Department of Commerce.

BASE PICTURE ON FIRESTONE CONTEST

President Coolidge Appears in Movie Produced by Ford and Partly Taken from Essay Written in Firestone Scholarship Contest—Stimulates Interest in Roads

In his desire to further the development of better roads, President Calvin Coolidge consented a short time ago to taking part in a new motion picture, "The Road to Happiness," which is now being presented at theaters throughout the country. The President appears in a scene which was "shot" on the lawn of the White House.

The picture is partly based on the Firestone University scholarship whereby H. S. Firestone, president of the tire company which bears his name, each year presents an award amounting to four years at college with all reasonable expenses paid to the high school pupil entering the best essay on good roads in the annual contest opened to all high school students in the United States and possessions.

The story centers about young "Bob Preston," farm boy, who trudges over muddy roads to school and who endures the hardships attendant to transporting farm produce to market over all but impassable highways. He determines to devote his energies to awakening the community to the advantages of better roads. At school he learns of a national essay contest on good roads, enters it and captures the first prize, a four-year course at college. From the hands of President Coolidge himself, "Bob," receives his certificate of scholarship. He takes up engineering, enters work in the Bureau of Public Roads and finally, when the county commissioners in his old home community realize the need of better roads, he accepts their offer and becomes county engineer.

Appearing also in this scene are the members of the Highway Education Board of which Roy D. Chapin, well known good roads advocate, is chairman.

T. M. MacDonald, chief of the Bureau of Public Roads, U. S. Department of Agriculture, also appears in the picture and there are several scenes in the Bureau of Public Roads at the national capital and the Bureau's experimental ground at Arlington.

"The Road to Happiness" was produced by the Ford Motion Picture Laboratory in cooperation with government officials at Washington and is a most entertaining and educational picture.

I.R.I. Issues Booklet

The Institution of the Rubber Industry, Faraday House, 10 Charing Cross Road, London, Eng., is distributing an attractive booklet for the express purposes of increasing membership and the promotion of a better and closer relationship between all sides of the rubber industry. Since its foundation in July, 1921, the Institution has done much to bring together the representatives of the various branches of the industry in the United Kingdom.

It is its purpose to bring out the capabilities of the younger members of the industry and to form a strong link between all members, no matter how scattered they may be. The I.R.I. has organized dinners, dances, smokers and golf meetings and considers any social activity that it believes will find favor with the greatest number of members. Membership has grown from 31 in August, 1921, to 570 in March, 1924.

European Firms to Exhibit

Business in the United States is the aim of French chemical manufacturers, according to the report of a representative of the National Exposition of Chemical Industries who is now in Europe.

Requests from European manufacturers of chemicals, dyestuffs, plant machinery and instruments, for space in the 1925 Chemical Exposition have been received in larger numbers this year than on any previous occasion. German, Swiss, French and British manufacturers are anxious to display their goods in the American exposition when it is held at the Grand Central Palace, New York, September 28th to October 3rd, 1925.

Sebring Wins Damage Suit

Sitting in Court of Common Pleas in Mahoning County, Judge George H. Gessner recently returned a verdict in favor of the Sebring Tire & Rubber Co., Sebring, Ohio, in a $25,000 damage suit brought by F. A. Taylor in behalf of his fifteen-year-old son, Robert. The plaintiff alleged that in October, 1922, young Taylor received burns on one knee when he fell into a hole filled with hot water on the rubber plant premises. The Court held that the boy had been trespassing on the Sebring property and was therefore not entitled to damages for his injuries.

RUBBER REPORT A PART OF A.S.T.M. PROGRAM

Committee D-11 on Rubber Products, of which F. M. Farmer is chairman, will report at the 27th Annual Meeting of the American Society for Testing Materials at the second session, on the afternoon of June 24. The meeting of the Society is to be held at the Chalfonte-Haddon Hall, Atlantic City, N. J. during the week beginning June 23.

The report of the committee on rubber products concerns the recommendation of tentative specifications to standard on various rubber products: air hose for use with pneumatic tools; rubber belting; rubber matting; adhesive tape; and cold water hose. Methods of testing rubber products are also to be given consideration in the report.

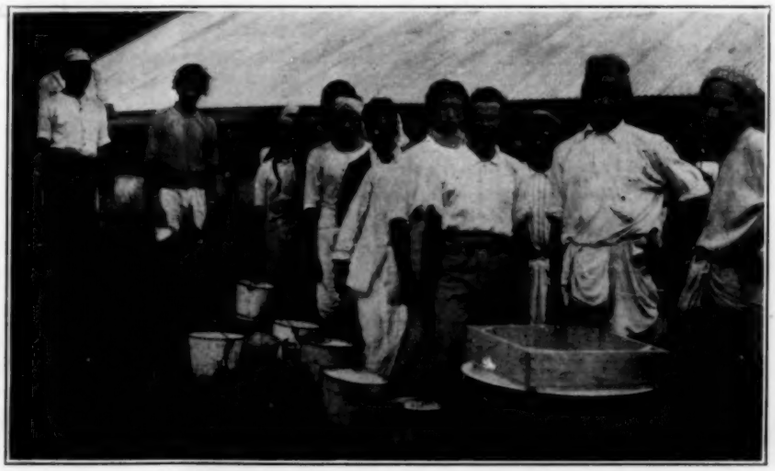
Gregory Makes Assignment

The Gregory Rubber Co., Akron, Ohio, recently made an assignment to H. A. Lengs for the benefit of creditors, according to papers filed in Probate Court. The deed names the assets, which consist of personal property, at $3,500. It is reported that the liabilities will not exceed $5,000. The firm had been manufacturing rubber toys in a plant located on North Union St.

Pneumatic Mold Closing Device

A pneumatic mold closing device to be used in conjunction with the air-bag process of manufacturing tires has been perfected by David Bridge & Co., Ltd., Manchester, England. The device, which is well-known to rubber manufacturers in England, is said to have proven successful in a large tire plant in this country. The manufacturers call it Duncan & Kearns' Patent Pneumatic Mould Closing Device.

In the Fiji Islands



Ewing Galloway, N. Y.

Straining Rubber Latex in the Fiji Islands

Regeneration of Vulcanized Rubber

Technologists have Never been Able to Solve the Problem of Satisfactorily Removing Sulphur, Despite Years of Effort

By Andre Dubosc

EVER since the time that rubber was first manufactured on an industrial scale, the problem of reworking rubber has received considerable attention, and in spite of all the efforts of old experienced practical men as well as of chemists, it has remained practically unsolved.

It has been the dream of rubber technologists to make a new rubber from old rubber, in the same manner that a new product is made from old iron or old cast iron, and to rework the gum by adequate treatment into a product, which possesses all the valuable properties that the rubber possessed at the time that it was first isolated from latex. It is unfortunate that up to the present time this has been but a dream and there does not seem to be a chance of its becoming a possibility within the near future.

In Germany where the demand for rubber has been very great, a number of chemists have applied themselves to the solution of this formidable problem and they do not seem to have been more fortunate than their predecessors. The separation of sulphur from the rubber possesses difficulties which are even greater than those which surround the production of synthetic rubber.

However the investigations and studies which have been made on this subject contain many very interesting matters which cannot be given too much consideration and study.

Solubility of Rubber and Reworking Technic

For example, if a test is made with Para rubber which contains ten per cent of sulphur and which is vulcanized at a temperature of 145 degrees C for a period of thirty minutes, there will be obtained a product, which, when subjected to extraction with acetone, for a period of sixty days, will give a residual substance which contains no more than 0.29 per cent of combined sulphur.

This product is not as elastic as the virgin rubber and from the commercial standpoint it is not possible to obtain a satisfactory product from this material after it has been revulcanized.

However it should be considered as a definite modification of the original crude rubber, as the percentage of sulphur in it, only 0.29 per cent, is practically negligible.

In appearance the hydrochloride that is obtained with the rubber, that is secured following the acetone extraction, is similar to that which is produced with a virgin gum. On the other hand it is harder and insoluble in common rubber solvents.

The fact that reclaimed rubbers are insoluble in the common rubber solvents was mentioned by Harries in 1916, and the writer has also spoken of this fact in various articles that were published at the same time. It is one of the indications of the presence of reworked rubber in a rubber mixture.

Other observations have also been made on this matter.

Tests with Hydrochloride

If the rubber hydrochloride, obtained from the acetone extraction, is subjected to distillation, the compound loses its hydrochloric acid, only at a temperature of 155 degrees C, or ten degrees higher than that of the hydrochloride of pure para rubber. If the vulcanization of the mixture of pure gum and sulphur is prolonged for a period of three hours, in place of thirty minutes, a product is obtained, which, when subjected to acetone extraction, contains two per cent of combined sulphur.

On the other hand experience has shown that commercial rubbers always contain a certain proportion of gum, which gives a hydrochloride which is soluble in common rubber solvents, as for example, chloroform. This preliminary observation can be used as a valuable step in the examination and the analysis of rubbers and in the determination of the degree of vulcanization which they have undergone. As far as is known there has not been made on this subject any experimentation or any test, which however does not involve any great difficulty. For example in hot air chambers the percentage of gum, which can be converted into a hydrochloride derivative which is itself soluble in chloroform, is often twenty per cent and more.

Difference between Reworked and Virgin Rubber

The reworked rubber, which is obtained by decomposing the hydrochloride, mentioned above, (this hydrochloride is soluble in pyridine), differs from natural rubber. This is contrary to what one would have thought at the first glance, for it does not contain any combined sulphur. When its ozonide is subjected to hydrolysis, instead of giving levulinic aldehyde, it yields diacetylpropane. This clearly indicates that there is a change in the position of the double bonds in the rubber molecule.

Under the influence of sulphur, at vulcanization temperatures, without the intervention of any combining action, the internal structure of the rubber should then be found to be changed. This is a fact of the greatest importance, from the standpoint of the mechanism of the chemical changes that take place during vulcanization and we are convinced that its importance will be realized by everyone, by the chemists as well as by practical rubber men.

There is still another fact of rather peculiar interest.

Although the hydrochloride of rubber is soluble in chloroform, the rubber, which is combined with the hydrochloric acid, contains combined sulphur, and furthermore it contains the same quantity of sulphur as the insoluble hydrochloride, which is furnished by the other part of the vulcanized rubber.

This is an extraordinary fact. It can hardly be believed that the portion of the rubber which furnished the soluble hydrochloride, does not contain any part of sulphur and it is also rather difficult to believe that it is exactly due to the fact that there is no sulphur in this hydrochloride that the latter is soluble. Practical experience shows that there is nothing in it.

On the other hand, if the rubber is regenerated with the aid of pyridine, it yields a gum which gives a hydrochloride insoluble in chloroform. Then when the reworked rubber is

(Continued on Page 174)

Andre Dubosc's Series on

VULCANIZATION & ACCELERATORS

will be continued in the June 25 issue of THE RUBBER AGE. *The article on this page is not a chapter of the above series.* On pages 181-184 of this issue will be found an outline of Dubosc's coming chapters.

Rubber Colors as Trade-Marks

United States Patent Office Rules that Rubber Colors, As Such, May Not be Utilized for Trade-Mark Purposes

(Written Especially for THE RUBBER AGE)

By Waldon Fawcett

ALL the world reacts to color, in varying degree. But Americans, it has sometimes been said, have been less sensitive to color than some other peoples. It must be admitted, if this be taken as proof, that our personal attire has not matched hues with that of some other nationalities. Nor have our habitations caught all the glints of the rainbow. But if Yankees have lagged in the past, certainly we are rapidly catching up with the procession in the use and appreciation of color. And, as part and parcel of this new color susceptibility, we have a more widespread desire to use color as a medium of commercial identification.

It is perfectly natural and logical that members of the rubber industry should be especially responsive to this lure of color as a means of giving clue to commodity identity. Rubber lends itself admirably to the role of color carrier. By way of flying start in the utilization, certain colors have been associated with rubber by tradition, as one might say. Best of all, from the standpoint of the practical brander, color is the most lasting form of production "key." It carries through the various stages of distribution to the ultimate consumer and endures during the entire service life of the colored article. Thus it is at hand to automatically suggest a repeat order when the time comes for replacement.

Upon this inspiring vision of the millenium of color in rubber tagging there has just broken a warning that is worthy the attention of the entire trade. By official action at Washington, Uncle Sam has established anew and emphasized the principle that rubber colors, as such, may not be monopolized for trade-mark purposes. On the face of it, this ultimatum by the chief umpire at the U. S. Patent Office would seem to sound the death knell of rubber-marks that rely upon color to catch the eye and hold the memory. In reality it is not so bad as that. Indeed, it is just because it affords a contrast of the allowable and not-allowable uses of color that the rubber industry may profitably turn its eye upon the test case that has supplied the latest and most meaningful precedent.

No less energetic a brander than the American Lead Pencil Company has supplied the rubber industry with its latest object lesson in trade practice. The interest of the American Company is not primarily in the branding of rubber but in the "individualizing" of lead pencils. But, in this instance, it hit upon the idea of utilizing a rubber adjunct—the eraser tip of the pencil—as a means to the end. It was not the idea to make the pencil cap or eraser (of the nipple type, in this instance) serve as a trade-mark. Everybody who has had any experience in getting trade-marks registered understands that the form of an article or a functional or structural feature cannot be capitalized as a trade-mark. Sidestepping this prohibition, the American Company sought to draft for trade-mark purposes an eraser color scheme. To that end the top or upper portion of the rubber dome was made red and the lower half white.

Because various manufacturers of lead pencils have from time to time registered a great number of trade-marks consisting of nothing more than colored bands of metal applied to the ends of pencils and pen holders it was assumed that the color execution in rubber would have clear sailing. Not so fast, said the Trade-Mark examiner when an application was presented to him. The American Company had claimed that a rubber eraser with a red top and a white cylindrical portion was clearly a novelty but the official censor would not be convinced. He declared it to be a matter of common knowledge that red rubber makes a good kind of erasing material. Therefore, he reasoned that merely to employ useful red rubber in the erasing portion of the cap and to utilize for the remainder the natural white rubber would not suggest to the trade anything which would distinguish the product of one particular manufacturer.

Not content to accept the "No" of the Trade-Mark Examiner, the American Company appealed its case to the highest authority at the government's clearing house for trade-marks, viz, the U. S. Commissioner of Patents. In so doing, this brander was, all unconsciously perhaps, fighting the battle of the entire rubber industry. Because the law is not explicit on details, the business community must rely upon test cases such as this to illuminate obscure corners of the trade-mark system and establish precedents that will be controlling in the future. Thus, in its educational aspect, this current show-down has been on all fours with the several tests that

What Constitutes Permissible Use of Color?

In view of the ruling of the United States Patent Office described above, it would seem that the death knell for the utilization of color combinations in rubber goods for trade-mark purposes has been sounded. Such, however, is not the case. The question hinges upon the fact whether the color-combination serves another purpose in addition to a trade-mark. If it does, the public may be led to believe that it is not a trade-mark at all. In such a case rubber color-combinations may not be registrable as trade-marks.

But if color serves no other purpose than a trade-mark it may be registered as such at the United States Patent Office. An example, is the use of color stripes on the side walls of tires. There is also a disposition at Washington to show greater leniency toward the use of little-known rubber colors, and color used in a definite design may be easily registered as a trade-mark. In order to be reasonably sure of registration, manufacturers should select uncommon colors not usually associated in the public mind with the "color of rubber."

have determined what classes of rubber goods are kin when it comes to fixing brand boundaries.

The U. S. Patent Commissioner fully upheld his subordinate in insisting that rubber colors—certainly not the colors red and white—shall not be appropriated to the exclusive use of any one firm. He backed up the Examiner in the view that inasmuch as red rubber erasers have been on the market for years and that from time out of mind white rubber eraser tips or caps have been in use on pencils it would be unjust to, at this late day, give a monopoly in the use of these colors to one firm, even if its arrangements of the colors did vary somewhat from previous practice.

Peeved at the refusal of a trade-mark franchise one of the officials of the American Company remarked that he was at a loss to understand why a trade-mark that is executed in metal (say, a pencil cap or band) is not registrable when executed in rubber. The answer at the Patent Office was that the metal bands are purely arbitrary and fanciful having no purpose or function or reason for presence save to mark and distinguish the goods. On the other hand rubber adjuncts, such as eraser caps, perform a definite function. Indeed, the umpires at the Patent Office feel that the public has been led by custom and tradition to expect eraser caps on lead pencils and that neither the public nor the trade, seeing red and white rubber in position on a pencil, would suspect that there was any other purpose than to afford an effective erasing medium.

Color is Not Entirely Barred

While the latest action at Washington means, with sharper warning than has ever before been given, that no trader may fence off for his own sole use the conventional, familiar and accepted rubber colors such as red, white, black, etc. the door is not closed to all reliance upon color for indicating sources of rubber manufacture. The acceptance of tire-stripes or color-zones on the side walls of tires is evidence to this effect. Provided color is disassociated from the performance of the duty or function of the colored article the color user may go far. It is the "rubber colors," or what the public thinks of as such, that are to be kept open range. The essence of the latest warning at the Patent Office is that no marketer of rubber articles need hope to isolate as his own private possession a color accounted characteristic of rubber in general and which other producers of rubber wares might logically use in much the same manner with no trade-mark intent.

Although the Government has, in effect, warned trade-markers in the rubber industries and associated lines that they must not expect Uncle Sam to support them in kidnapping a color that is the common heritage of the entire trade, there is a disposition at Washington to show greater leniency toward the use of strange colors. It has been recognized all along that color translated in a definite arbitrary design, such as a circle, star or cross, is a perfectly good trade-mark. Added to that is the latter-day recognition that some concessions should be made in color uses in deference to the needs of manufacturers who put out classes of articles that are difficult to trade-mark. Certain rubber articles are in this hard-to-mark class. So too, for example, is rope. Thus we have a recent ruling at Washington that a color strand is registrable as a trade-mark for rope, provided it is separate from the structural part of the rope but located in the interior thereof and enclosed by its strands.

Certain Combinations Permissible

If a trade-mark doctor were to write a prescription for a color-mark that would be sanctioned for use on rubber goods he would probably call for a dash of orange, blue or green. Anything that is denounceable as a "rubber color" or that is open to suspicion of having been produced incident to the normal processes of manufacture has hard sledding to get by the censors. It does not bear witness, by the very oddity of the tint, to the fact that it must have been adopted for a trade-mark purpose and no other. The disadvantage under which one of the complimentary colors of rubber always labors was well indicated some time since when the Patent Office turned down a gray band as a tire badge. Gray is not accounted in the lay mind a color peculiar to rubber as is white and certain tones of red but the Patent Office experts found that the gray band was the result of construction and not put in with trade-mark malice aforethought.

Gray came to grief also as being on the regular color card of rubberdom in a contest some years ago which pivoted on the use of a gray band encircling the top of rubber boots, etc. In that instance the judicial referee said that if color was inherent in rubber, due to manufacture, etc., it could not pass muster as a registrable trade-mark, and no more could it do so if the color was employed primarily for purpose of ornament. The refusal to grant monopoly of the colors that reek of rubber holds good in the case of combinations of colors quite as well as in the case of single colors. The Patent Office holds that where, in consequence of the advisability or necessity of using different grades or kinds of rubber, a two-tone color scheme is worked out the ban remains in force. This in the current object lesson the red-and-white eraser was vetoed at the Patent Office just as if it had been all white or all red.

A Red Band on Nipples Acceptable

As indicating the hair-splitting differences that enter into trade-mark acceptability it may be mentioned that even as the Patent Office was rejecting the American Pencil Company's eraser cap it accepted from the Revere Rubber Company of Providence a trade-mark for rubber nipples consisting of a red band about the edge of the nipple. But here there was the difference that the red edge was not obviously achieved incident to the regular routine of manufacture; the public has never been led to expect, by long association, the appearance of red bands on rubber nipples; and the red band in this instance is a bit off the shade which the lay public thinks of as the "natural color" or red rubber. All the same, if a rubber manufacturer desires to play safe he will not only apply his color mark in something superfluous to the structure of the rubber article but will also pick for the job, purple, or brown or some other color not commonly associated with rubber.

Regeneration of Rubber

(Continued from Page 172)

subjected to ozonization, and the ozonide is subjected to hydrolysis, it gives only traces of methyl cyeohexanone and levulinic aldehyde.

It therefore seems that the vulcanized rubber, which yields an hydrochloride insoluble in chloroform, does not undergo any change in internal structure. This is contrary to what happens after vulcanization, when a hydrochloride is obtained which is soluble in chloroform. The ozonization of the latter rubber is accomplished without any difficulty, the gum being dissolved in ethyl acetate.

From these observations the conclusion may be drawn that the rubber, during vulcanization, must undergo a modification in internal structure and that the vulcanization operation is composed of two phases.

The Phases of Vulcanization

In the first phase, the gum undergoes a change in internal structure, which takes place at the same time as the absorption of sulphur by the rubber molecule. The possibility of acetone extraction of almost the entire quantity of sulphur that is contained in the mixture, the formation of a rubber hydrochloride that is soluble in chloroform, the modification of the action of ozone and the formation, through hydrolysis of the ozonide, of dicetylpropane, are all characteristics of this phase of the vulcanization.

In the second phase of vulcanization the gum returns to its original internal structure and then it combines with sulphur which saturates the double bonds of the rubber molecule. It then furnishes a hydrochloride which is insoluble in chloroform; it conserves the greatest part of the sulphur for the acetone extraction and it gives, through ozonization and hydrolysis of the ozonide thus formed, levulinic aldehyde.

These different facts, which might be corroborated by an exact analysis, merit the attention of all those who are interested in the difficult problems of vulcanization.

New Rubber Paving Material Perfected

Rubbacrete, a British Invention Which Overcomes Difficulty of Binding Rubber to Concrete, may be Marketed Here Soon

THE invention of Rubbacrete, patented in Great Britain under the number 208,679, and on which United States and Canadian patents are pending, enables a rubber surface to be so firmly attached to concrete that it will withstand the heaviest traffic without injury. It consists in a rubber sheet or cap, manufactured from a formula in which about 30 per cent of crude rubber is used, having numerous cylindrical rubber projections on the underside that form an integral part of the cap itself. The area of these pins is about one-half the area of the sheet of which they are a part.

In making rubber faced concrete road blocks, paving slabs and tiles, the rubber cap is placed in the bottom of a mold with the binding pins upward. Fine concrete is then poured into the mold and settles about the rubber projections, after which the mold is filled with concrete to the desired thickness and the concrete allowed to set. While setting, the concrete contracts and tightly grips the rubber pins, resulting in an extremely strong adhesion between rubber and concrete. Where a concrete floor or pavement is being laid the concrete is "floated" to a level surface and the rubber cap plastered with cement on the underside after which it can be directly placed on the concrete bed.

The Rubbacrete process is similar to another British invention utilizing lugs transversed by a series of non-resisting wires, of which a report on experiments conducted was published in the May 10 issue of THE RUBBER AGE.

To Form American Company

J. J. Hennebique and G. O. Case, member and associate member respectively, of the American Society of Civil Engineers, propose the formation of a company to purchase the United States and Canadian rights to the invention and to lay down several acres of this type road so that its advantages may become widely known in this country. The corporate title will probably be The Novocrete Company, with offices in New York City. Experiments are said to have proven a success when this invention was used for floors and stair treads.

Experiments in Great Britain

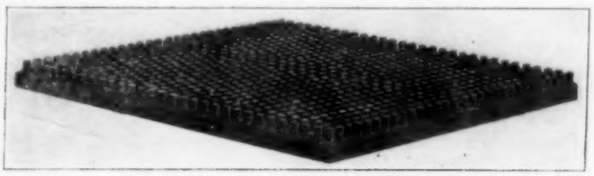
More interest in rubber paving material has been manifested in the British Isles than here in America. Since 1913 the Rubber Growers' Association of London, and Rubber Roadways, Ltd. (founded by them for the purpose of introducing rubber roads), have spent large sums in laying down stretches of rubber roadways, with a view of proving the advantages of rubber for this purpose, and to try to overcome the difficulties of adhesion between rubber and concrete.

The following information was obtained in an interview with the promoters of Rubbacrete: In August, 1913, a section of rubber roadway made with rubber-capped hardwood, Yarrah blocks 3 in. wide and 8 in. long, was laid at the junction of Old Kent Road and New Kent Road, London, in accordance with the invention of Morland N. Dossau. The rubber was in the form of a capping about ½ in. thick, having dove-tailed projections running longitudinally fitted in dove-tailed grooves in the hard wood block. This method of construction proved to be a failure from a construction standpoint as "a short time after these blocks were fixed, several of the caps became detached and were replaced ..... In June, 1915, it was decided to take up all the blocks for examination," said A. Harrison in a paper read at the 1921 International Rubber Exhibition.

In 1918 a section of rubber roadway was laid down Borough High Street, London, with blocks 9 in. long by 3 in. wide, having a slab of rubber 9/16 in. thick vulcanized onto a steel plate, this plate being made with 8 cuts about 1 inch long, so as to produce 4 lugs for holding down into the concrete. The rubber capped steel plates were laid down on a foundation of reinforced concrete on the top of which was fine concrete composed of clean grit sand in the proportion of 1 of cement to 4 of sand, on which the rubber blocks were placed in such a manner that the lugs were imbedded in and gripped by the concrete. This method of construction proved unsatisfactory as regards the adhesion between the rubber blocks and the under surface of concrete. As a result of the failure of the adhesion in the type of rubber roadway above described another method of construction was then tried. The steel plate was substituted by a plate of expanded metal embedded in the vulcanite on the under side of the rubber capped plate which was provided with added lugs. The roadway was then relaid with this type of block.

Although this section of rubber roadway again proved the great wearing qualities of rubber when subject to heavy traffic and the advantages of a rubber roadway as regards reduction of noise and vibration, the method of construction proved to be unsuitable owing to the difficulties of adhesion between the rubber cap and the concrete.

The report of Rubber Roadways Ltd., for 1922 states that



Rubbacrete Block—Showing the Projections on the Under Side that Grip the Concrete

the "method of attachment had the drawback that the cap had to be laid in wet concrete and the road closed to traffic until the concrete was properly 'set.' The report for 1923, referring to the same method of construction, states that "The Borough Engineer came to the conclusion that such a mechanical attachment possesses certain disadvantages."

In September, 1923, a section of rubber roadway was laid down around the Cenotaph in London. A smooth concrete subsurfacing was laid down and on this hot pitch was spread just prior to laying the all rubber blocks. The solid rubber blocks measured 8 by 4 by 3 inches, the upper half-inch consisting of rubber of the quality and resiliency which has proved successful in other tests, the remainder being composed of a hard rubber of a lower grade, the two grades being vulcanized together to form a homogeneous block. The blocks were made with a groove on one side and a corresponding projection on the other, so that when laid they were mortised and tenoned into position. Before being laid each block was dipped in hot pitch.

Shortly after the stretch of rubber roadway was laid down around the Cenotaph in London, it was found that the blocks were not binding together properly and the City Engineer of Westminster reported that, extensive alterations will be necessary in order to prevent the spreading movement that is going on.

Although the advantages of rubber for roadways cannot be disputed, the two difficulties encountered have been high cost, and difficulty of adhesion between the rubber and concrete. In the report of Rubber Roadways for 1922 it is stated that "there is no doubt whatever about the wearing qualities of the rubber and the many other advantages which we claim for it; the problem to be solved is the attachment of the rubber to the road bed in such a way as to withstand the stress and strain of fast moving vehicles carrying loads of 5 tons and upwards."

In the past the great cost of rubber roads has been largely due, it is said, to the difficulty of attaching the rubber to the concrete. The Borough Engineer of Southwark, London, who has had a large experience in laying rubber roads stated, "It is not the cost of the rubber—it is the cost of getting a suitable attachment to the road that will stand traffic, and we shall be very glad if anyone can find a cheaper way of attaching the rubber.

Experiments With Rubbacrete

In order to ascertain the amount of adhesion necessary between the rubber surface and concrete in a road subject to heavy traffic experiments were made for the Novocrete Company by Dr. J. S. Owens, B.A., A.M., I.C.E., F.G.S., F.R.G.S. After mature consideration he came to the conclusion that the maximum force likely to be applied, and against which provision should be made, would be in the nature of shear forces, tending to slide the rubber surface over the concrete surface. It is obvious that no calculation as to the tractive effort required for pulling certain loads would give the maximum force likely to be applied to the road surface, as a shearing force is more likely to be applied when braking heavy vehicles severely, rather than when starting up.

Taking the permissible load per inch width of wheel allowed in London, then the maximum shearing force was found by multiplying the maximum load into the coefficient of friction, as the vehicle cannot exert any greater force upon the rubber surface since the wheels would skid, and as this force is applied to the part where the wheel is resting on the rubber surface it is entirely a shearing force; and the weight of the wheel holds down the rubber at the same time as the shearing force is applied by the tractive effort of the wheel, operating through the axle weight or by the suddenly braked wheel.

Dr. Owens found by experiment that the ultimate shearing strength of the sample rubber cap was about 4000 lbs. per sq. inch.

The coefficients of static friction which represents the ratio of force required to move a body to the weight or pressure of the body upon the surface upon which it slides were found by Dr. Owens to be as follows:

Between rubber and dry concrete with smooth surface	0.64
The same, but surface damped	0.74
Rubber on rubber smooth	1.43
Cast iron on rubber smooth	0.44
Steel on rubber smooth	0.53

Experiments were then made to ascertain the degree of compression of the rubber under load and an expression was then evolved which enabled Dr. Owens to ascertain the maximum shearing force under a given condition.

Dr. Owens calculated that the maximum shearing force for a heavy motor truck, with 4 ft. diameter wheel with a rubber tire, was approximately 300 lbs. per square inch and that with a 3 ft. diameter wheel, having 2 in. thick rubber tire, loaded to 10 cwt. with a ¾ inch rubber surface, the maximum shear exerted would be about 312 lbs. per square inch. The forces given are the maximum values and represent the condition which would result if the wheel is caused to skid on a dry surface by sudden braking.

Calculations were next made for a heavy traction engine or road roller with steel-tired wheels having a diameter of 3 ft. loaded to 7½ cwt. per inch of width and the shearing stress was found to be about 180 lbs. per sq. inch on a ½ inch rubber surface and 250 lbs. on a ¼ inch rubber surface.

The calculations therefore show that the maximum shearing force on a rubber road would be about 300 lbs. per sq. inch.

Taking into consideration the maximum shearing force likely to be met and the shearing resistance of rubber, Dr. Owens concluded that Rubacrete is a practical proposition and the adhesion sufficient to avoid danger of the caps being torn off. He states, "I have come to this conclusion owing to the fact that I have found the resistance of the rubber to shearing so high, that it should be possible, considering the number of points of attachment and the strength of such attachments to resist the force applied by London traffic."

Samples of Rubacrete were submitted to the Rubber Growers' Association of London in 1923 and the Board of Directors of Rubber Roadways approved of the invention.

A report on Rubacrete was also made by Col. R. E. Crompton, C.B., R.E., M.M.I.C.E., formerly consulting engineer to the British Ministry of Transport and one of the world's foremost road experts. He reported that in his opinion the invention did succeed in attaching rubber to concrete and that it was correct from a mechanical point of view

The success of Rubacrete and the strength of the adhesion between the rubber and concrete is said to be due to three things: The area of rubber pins entering the concrete is sufficient to avoid danger of shearing. The pins are sufficiently close together to avoid any risk of creeping. The concrete setting in air contracts and tightly grips the pins.

Advantages of Rubber Roads

Rubber roadways unquestionably have a long life. Rubber blocks were laid in St. Pancras station yard, London, in 1870 and some of the original blocks are still there, showing the life of over 53 years.

A. Harrison, the Engineer from Southwark, states that in his opinion rubber has proved to be a most suitable material for road paving owing to a minimum of wear.

During the period—1 year 8 months—that the piece of rubber roadway laid in Southwark in 1915 was under observations it carried a traffic averaging over 190 tons per yard of street width per hour. In a report made by the Borough Engineer, A. Harrison, M.I.C.E., he states that "the blocks were carefully examined for wear. On being placed side by side with new blocks they did not appear to have lost anything through wear, although there were several slight scratches on the surface, but on removing the rubber caps from the wood blocks it was found that considerable wear had taken place both on the wood and under side of the rubber cap."

The rubber paving at the entrance to St. Pancras station, London, is an excellent example of the extraordinary wearing qualities of rubber. In 1870 the rubber paving was laid down and when the roadway was widened in 1891, twenty-one years afterwards, half of the road was relaid with the old rubber. In 1908 and 1915 portions of the rubber were renewed. In 1922 there was still some of the rubber paving in use which was originally laid in 1870, fifty-two years previously.

In a paper reprinted in the Bulletin of the Rubber Growers' Association Inc., of June, 1921, Mr. Harrison stated, "My look forward to rubber is that it will probably last longer than any other material. From an economic point of view, the less frequently you disturb a road, the more important and the greater saving is that to the public—say we spend £5000 remaking a road the cost to the general public in delay of traffic and other ways must be much greater than that."

There is no dust with rubber roads and the rubber is easily cleaned, therefore it is hygienic and sanitary. Snow and ice do not adhere to rubber and it is not affected by sun, rain or frost. It is oil resisting, an important factor with motor traffic.

The Borough Engineer of Southwark in a report on the section of rubber roadway laid at the junction of the Old and New Kent Roads, London, in August, 1919, stated, "No case of slip has been found; in fact it was the part of the roadway where a true imprint of horse shoes could always be found, whereas generally in other parts the imprint of horse shoes showed a slight slip or twist in damp weather. These observations were considered most important, as previous to this section being laid, it was a belief that the rubber would prove to be slippery and not give a good foot-hold, and that it would facilitate skidding of vehicles."

In 1879 the North British Rubber Company paved the whole sidewalk in front of its warehouse in Prince Street, Edinburgh with rubber. The wearing qualities of the rubber are well illustrated by the fact that thirty years later (1909) in order to carry out an agreement with the City the rubber was taken up.

In 1922 portions of platforms No. 13 and 14 at Euston Station, London, were laid with rubber paving. The platforms where the rubber paving has been laid are principally used for the main line departure and American boat train traffic and include the entrance gate, luggage weighing machines, book stalls and refreshment rooms. Where the paving

(Continued on Page 178)

TECHNICAL ABSTRACTS

Mechanical **Chemical** **Physical**

Imitation Gutta Percha and Leather

Imitation gutta percha and leather are produced by passing raw paper through a bath of sizing materials, for example, glue, casein or albumin, of five to fifteen per cent concentration, at a temperature varying between 35 and 40 degrees C, and pressing between rolls during or immediately after immersion. After several hours, hardening materials, such as alum, chromium salts, or formaldehyde are applied. The material is then softened by treatment with glycerine, or alternatively, soap or castor oil may be included in the sizing bath. The sheets are finally coated with a transparent varnish. The addition of sodium hydroxide up to two per cent, or of lactic acid up to thirty per cent of the weight of the dry sizing material that is employed in making the product, facilitates impregnation in the sizing bath. For combining several layers of treated paper a stronger solution, for example of twenty-five to thirty-five per cent concentration, of the sizing material is employed. (British Patent No. 207,352.)

Acid-Resisting Lining for Tanks

The lining of tanks with substances that will resist the action of acids and acid solutions as well as the equipment of other chemical apparatus with similar resistant linings is a subject which has received considerable attention lately. Rubber both in the soft and hard form has been suggested as being particularly suitable for this purpose, but it is a fact that rubber possesses certain disadvantages, when used for this purpose, which must be overcome in order to make its use feasible on a large scale. The subject of British Patent No. 212,355 is concerned with a method of improving the rubber coating or lining of tanks and chemical apparatus of all sorts so that the disadvantages of the substance are overcome.

The process is particularly adapted for the construction of tanks, pipes, agitators, and other chemical apparatus for use with acid liquors especially hot or cold liquors containing hydrochloric acid. Such tanks when lined with enamel, glass, or ebonite are not very durable, and are not readily repaired.

In this invention such tanks are lined with an unvulcanized sheet rubber compound, which is resistant to hydrochloric acid and other acid liquors. This material may be applied to the vessel in sheets, and the edges may be joined together in order to make a joint that is absolutely tight to liquids by applying a solvent such as naphtha to the overlapped edges. Another method of joining the edges together in order to get a perfect liquid-tight joint is to heat them locally to a temperature of 130 degrees C without the use of a solvent. The article which is treated in this manner is then ready for use without being subjected to preliminary vulcanization.

It is found that unvulcanized sheet rubber, which consists of rubber and sulphur, and which would yield a flexible vulcanized product, is not suited for use for this purpose owing to its tendency to shrink. This tendency is counteracted by the addition of an inorganic filling material.

A suitable composition consists of 29 per cent of rubber, 3.1 per cent of sulphur, 35 per cent of silica, 7.5 per cent of alumina and iron oxide, 13.3 per cent of magnesia, 2.1 per cent of lime, four per cent of lead oxide, and one per cent of zinc oxide and five per cent of carbon. When in use the lining is probably vulcanized superficially, and has been found to contain five hundredths of a per cent of sulphur in chemical combination. This surface effect may be produced by subjecting the built-up lining to the action of boiling neutral strong brine at a temperature of 105 degrees C for a period of several hours. The treated surface prevents the adjoining of adjacent sheets, and the surface should be removed before the joints are made.

In some cases the lining may first be built in the required shape, and then applied to the vessel. The lining may be protected from mechanical injury by a facing of wood or other protective material. This lining has been found to be very resistant to abrasive action, for example in the case of tanks and agitators for treating mineral pulp. The material resists the action of sulphuric acid up to a strength of eighty per cent when cold and up to a strength of twenty per cent at a temperature of 100 degrees C.

Coloring Rubber

An interesting process of coloring rubber and for the production of colored rubber-coated materials is patented in British Patent No. 210,495. Colored aqueous rubber solutions and emulsions for the impregnation of textile materials are produced by allowing the raw or vulcanized rubber, with or without the addition of diluents, to swell in an organic liquid, such as benzene or carbon disulphide. After decanting the superfluous liquid the swollen rubber is emulsified with water in a colloid mill or similar disintegrator, with the addition, if desired, of emulsifying agents. Such reagents as urea, fatty acids and their compounds or the sodium salt of sulphonated oleic acid may be employed. The coloring can be effected simultaneously by adding finely powdered colors, either of organic or inorganic origin. The proportion of coloring agent that is required is much less than is necessary in other methods. Alternatively the colors may be finely dispersed in a colloid mill and then mixed with natural or artificial latex.

Vulcanization of Rubber in Solution

A study of the properties of rubber in solution, as far as the vulcanization process is concerned, is contained in the Comptes rendue de l'Academie des Sciences. The crude or vulcanized rubber in the state of a colloidal solution in an organic medium is found to be susceptible of being vulcanized with the aid of sulphur. The reaction that takes place between the rubber and the sulphur, the former being in solution form, takes place in the cold under the influence of ultra violet rays. Vulcanization can also be effected with sulphur in the nascent condition and at an elevated temperature. The action of sulphur on the solutions of rubber at an elevated temperature, is noticeable at a temperature of 100 degrees C, but it becomes very active at temperatures starting with 120 to 130 degrees F. The phenomena of vulcanization takes place in a different manner in accordance with the concentration of the rubber solutions. Thus if the concentration of rubber in the solution is very low, only from one to two per cent, the action is quite different than when the concentration is fairly high, for example in the case of a solution containing ten per cent of rubber. Tabulated results are given in the original article on the experiments performed with different concentrations of rubber solutions.

Ebonite Substitute

A substance which resembles ebonite or vulcanite can be made from blood by mixing the same with a binding medium, for example gum tragacanth solution and heating to boiling. The product is hardened with formaldehyde and the resulting cake is pressed for the removal of much of the water. After drying the residue is powdered, mixed with ten to fifteen per cent of its weight of a mixture of grease or fat, water glass and aqueous alkali, and finally molded under pressure with the aid of heat. (British Patent No. 210,495.)

Government Master Specification for Rubber-Metal Gasoline Hose

THIS specification was officially adopted by the Federal Specifications Board on May 1, 1924, for the use of the Departments and Independent Establishments of the Government in the purchase of rubber-metal gasoline hose. The latest date on which this specification shall become mandatory for all Departments and Independent Establishments of the Government, is August 1, 1924. The specification may be put into effect, however, at any earlier date.

1. General

a. This specification covers the requirements for hose to be used for conducting gasoline.

b. See General Specifications for Rubber Goods, Federal Specifications Board Specification No. 59, which are a part hereof, except in such cases as the provisions below directly conflict. In such cases the word and meaning of this specification will govern.

c. Hose shall be furnished with couplings attached, in lengths of 10, 12 or 25 feet as ordered.

2. Construction and Material

a. *Design.* The hose shall be made with flexible metal tube, rubber tube, and cotton jacket.

b. *Flexible Metal Tube.* The flexible metal tube shall be made from a continuous strip of smoothly galvanized steel, brass, bronze, or copper.

c. *Rubber Tube.* The rubber tube shall fit the metal tube tightly and shall be free from all imperfections. The thickness at any point of the tube shall be not less than 1/16 inch. By thickness is meant the distance from outside of metal tube to bottom of impressions left by cotton jacket.

d. *Cotton Jacket.* The cotton jacket shall be woven from a good grade of cotton, and shall be even and firm in texture throughout and as free from all injurious or unsightly defects as is consistent with the best manufacturing practice. It shall cover the rubber tube uniformly and tightly.

3. Marking

A distinctive brand to include maker's name, trade name of hose, year and month of manufacture, shall be placed on each length of hose.

4. Tests

a. *Hydrostatic.* A 10-ft. section of 1 inch or 1¼ inch hose lying straight and filled with water shall withstand an internal pressure of 200 lb. per sq. in. for 5 minutes without leakage. The hose shall then withstand a pressure of 350 lb. per sq. in. without failure, the pressure in each case being increased at the rate of 100 lb. per sq. in. per minute.

b. *Bending Test of Hose.* When a sample of hose is bent to "U" shape between the flat heads of a compression machine, the cotton jacket shall show no indication of failure under the following loads:

Size of Hose, in.	1	1¼
Applied load, when bent, lb.	200	300

c. *Yield Point of Metal Tube when Bent.* When a section of the metal tubing is tested as in (b) above, the yield point shall be not less than that stated below:

Size of Hose, in.	1	1¼
Yield Point of metal minimum, lb.	175	250

d. *Crushing Test of Hose.* The load required to produce an indentation of ½ inch in the hose when applied to a flat metal block 1 inch long placed on top of the hose, shall be not less than that stated in the following table. The load shall be applied at a point not less than 3 inches from the end of hose.

Size of Hose, in.	1	1¼
Load required to produce indentation of ½ inch, minimum, lb.	550	800

e. *Tests of Rubber Tube.*

(1) Physical. Tensile Strength, lb. per sq. in., minimum, 1000; Ultimate Elongation, in. minimum, 2-7; Set-stretch 10 minutes, in., 2-6; Per cent set after 10 min. rest, maximum, 20.

(2) Chemical. Immerse completely in a glass stoppered bottle, a 10-gram sample of rubber compound in not less than 35 cc. and not more than 70 cc. of gasoline, conforming with Federal Specifications Board Specification No. 2, for Aviation Gasoline, Domestic Grade. After 48 hours immersion at a temperature of 70 to 80°F the gasoline shall be poured off and the bottle and sample washed clean with 25 c.c. more of fresh gasoline. These portions shall be combined, evaporated to dryness in a weighed glass flask on a water bath or electric hot plate and then dried in an air oven for one hour at 220°F and weighed. A blank test shall be conducted, in which the same amount of standard gasoline shall be evaporated and dried in the same manner, and a correction applied to the weight in the above test. The amount of non-volatile matter extracted shall be not more than 2 per cent of the weight of the compound first taken.

5. Couplings

The couplings shall be free from porosity or other injurious defects, and shall be securely attached to the hose in a workmanlike manner. The design shall be as stated in the proposal.

New Rubber Paving Material

(Continued from Page 176)

is laid it is estimated that 2000 barrow loads of passengers' and other luggage pass over the paving every day. The rubber tiles are one-half inch thick in squares measuring from 18 inches to 24 inches and contain over 40 per cent of plantation rubber. All the tiles are specially backed to prevent creeping or spreading.

Sir Stanley Ross stated in July, 1923, that "the rubber platform is giving every satisfaction and does not show the slightest sign of wear."

The rubber stairway at the Elephant and Castle, London, has successfully passed a test extending over a period of two years. The Borough Surveyor of Southwark states that "During the last 25 years all types of patent treads have been tried at various times without success but up to the present there is a general opinion that the rubber treads are by far the most satisfactory ever used." An inspection of this stairway in July, 1923, showed that after being laid for 2 years it showed no signs of wear.

Stair treads at several stations in England have been installed, including New Street, Birmingham, and in the Report of Rubber Roadways for 1923 it is stated that "there is no reason why they should not be adopted at all Railway Stations, and, in fact in all places where there is constant foot traffic. Rubber stair treads last longer than any other material in this form, and can be provided at less than one-half the cost of wood and metal treads. There is no risk of accidents with rubber treads owing to their non-slippery properties. These considerations surely must compel the use of rubber and our efforts will be devoted to securing a wider application of this form of covering."

Owing to its noiselessness and excellent wearing qualities rubber tile flooring is now extensively used in offices, corridors, etc. For these purposes, where the floor is only subject to light traffic, thin rubber tiles can be attached to wood or cement floors by a special tile laying cement, and while the adhesion is sufficiently good for light foot traffic it is impracticable to cement rubber tiles onto wood or concrete where there is very heavy traffic or trucking, as is the case in roads, sidewalks, railway platforms, factory floors, etc. The invention of Rubacrete enables rubber to be so firmly attached to concrete that there is no risk of the adhesion giving way under the heaviest traffic or heavy trucking. It is, therefore, now possible to use rubber for making roads, pavements, railway platforms, and factory floors.

RUBBER STATISTICS

Import **Production** **Export**

Exports of Rubber Goods from U. S.—April, 1924

Compiled from Statistics Furnished by the Department of Commerce

RUBBER BELTING, HOSE, PACKING, AND THREAD.

	Rubber Belting		Rubber Hose		Rubber Packing		Rubber Thread	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
Totals	342,331	212,174	446,767	166,097	195,909	83,561	85,573	84,761

PNEUMATIC CASINGS AND PNEUMATIC TUBES

	Pneumatic Casings				Pneumatic Tubes			
	For automobiles		Other		Automobiles		Other	
	Number	Dollars	Number	Dollars	Number	Dollars	Pounds	Dollars
Totals	113,135	1,402,594	3,665	14,431	90,896	182,767	2,780	2,240

HARD RUBBER GOODS

	Battery jars and Accessories		Other Electrical Supplies		Other hard rubber goods	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
Totals	13,855	5,238	12,322	9,077	46,668	54,726

WATERPROOFED AUTOCLOTH, RUBBERIZED FABRICS, ETC.

	Waterproofed Autocloth and Rubberizer Fabrics		Waterproofed Clothing	
	Sq. yards	Dollars	Pounds	Dollars
Totals	209,310	122,050	94,485	96,753

SOLID TIRES, ACCESSORIES AND REPAIR MATERIALS

	Solid Tires					
	For Automobiles and Motor Trucks		Other		Accessories and Repair Materials	
	Number	Dollars	Number	Dollars	Pounds	Dollars
Totals	8,068	209,520	134,840	33,368	116,523	41,858

RUBBER FOOTWEAR AND SOLES AND HEELS.

	Boots		Shoes		Canvas shoes with rubber soles		Rubber soles and heels	
	Pairs	Dollars	Pairs	Dollars	Pairs	Dollars	Pounds	Dollars
Totals	23,055	67,505	53,300	42,261	243,427	196,322	235,891	72,068

SUNDRIES, BATHING CAPS, RUBBER BALLS

	Water bottles and fountain syringes other Druggists' Rubber Sundries				Bathing caps		Toy rubber balls and balloons	
	Number	Dollars	Pounds	Dollars	Dozen	Dollars	Pounds	Dollars
Totals	11,427	9,556	52,660	67,096	20,441	33,923	79,407	77,060

Importations of Crude Rubber into the United States During April, 1924

Figures compiled by The Rubber Association of America, Inc.
(Estimated net weights—long tons)

PLANTATIONS

FROM	TONS
Batavia	1,927
Belawan-Deli	3,753
Colombo	4,266
Liverpool	90
London	2,453
Malacca	1,706
Penang	4,940
Pt. Swettenham	2,619
Rotterdam	22
Singapore	17,970
Sourabaya	1,692
	41,438

AFRICANS

FROM	TONS
Bordeaux	72
Liverpool	67
	139

CENTRALS AND GUAYULE

Centrals (Mexico and Central America)	9
Guayule (Mexico)	164
	173

PARAS

Iquitos	8
Manoas	473
Para	205
	686

GUMS, WASTE RUBBER, ETC., IMPORTED FROM VARIOUS SOURCES

	Tons		Tons
Waste	114	Miscellaneous Gums	1,371
Balata	55		

COMPARISON 1923-1924

	APR.-1923	APR.-1924	Total Importations 4 months ending, APR. 30. 1923	1924
Plantations	29,922	41,438	112,764	108,035
Paras	1,095	686	5,814	3,898
Africans	399	139	1,998	1,175
Central	30	9	203	223
Guayule	142	164	142	231
Manicoba and Matto Grosso	—	—	—	—
	31,588	42,436	120,921	113,562

Arrivals Plantations for April, 1924, Showing Ports of Origin and Arrival

FROM	ARRIVED AT	TONS
Batavia	Boston	46
Batavia	New York	1,881
Belawan-Deli	Boston	42
Belawan-Deli	Los Angeles	43
Belawan-Deli	New York	3,668
Colombo	Boston	144
Colombo	New York	4,122
Liverpool	New York	90
London	Boston	25
London	New York	2,428
Malacca	Boston	25
Malacca	New York	1,681
Penang	Bostoh	105
Penang	New York	4,835
Port Swettenham	Boston	38
Port Swettenham	New York	2,581
Rotterdam	New York	22
Singapore	Boston	531
Singapore	Los Angeles	524
Singapore	New York	16,859
Singapore	Philadelphia	52
Singapore	Seattle	4
Sourabaya	New York	1,692
		41,438

ARRIVALS OF PLANTATIONS BY PORTS

Atlantic Ports		
Boston	956	
New York	39,859	
Philadelphia	52	
		40,867
Pacific Ports		
Los Angeles	567	
Seattle	4	
		571
		41,438

Shipments of Rubber Manufactures from the United States to Non-Contiguous Territories During March 1924

	Alaska		Hawaii		Porto Rico	
	Quantity	Dollars	Quantity	Dollars	Quantity	Dollars
Boots and Shoes (Pairs)	4,848	15,792	....	....	6	19
Canvas Shoes with Rubber Soles (Pairs)	298	412	5,334	6,579	56,180	37,034
Druggists' rubber sundries (Pounds)	27	57	1,808	3,568	3,540	3,288
Automobile casings (Number)	143	1,932	5,123	78,203	4,206	54,749
Automobile inner tubes (Number)	91	253	4,862	9,983	2,779	6,999
Other tires (Number)	....	....	521	1,716	887	2,101
Belting, hose and Packing (Pounds)	49,581	24,911	28,195	14,160	14,473	5,234
Other rubber manufactures (Pounds)	562	222	11,437	7,938	15,897	6,779
Coated and waterproofed goods (Pounds)	15,540	10,718	8,555	5,448	4,413	2,653

Shipments of Rubber Manufactures from the United States to Non-Contiguous Territories During April 1924

	Alaska		Hawaii		Porto Rico	
	Quantity	Dollars	Quantity	Dollars	Quantity	Dollars
Boots and Shoes (Pairs)	13,640	44,542	886	1,424	554	821
Canvas Shoes with Rubber Soles (Pairs)	224	318	4,712	6,770	82,595	58,093
Druggists' Rubber Sundries (Pounds)	....	....	1,634	1,964	2,904	2,487
Automobile Casings (Number)	144	2,117	6,809	91,299	5,920	77,602
Automobile inner tubes (Number)	108	258	5,974	12,517	4,561	9,043
Other tires (Number)	17	34	1,001	4,631	204	1,034
Belting, hose and packing (Pounds)	56,812	25,681	28,599	15,238	9,249	3,987
Other rubber manufactures (Pounds)	1,695	1,169	17,293	13,918	17,330	7,238
Coated and Waterproofed goods (Pounds)	20,472	13,060	13,541	7,673	5,674	3,770

Imports of Crude Rubber, Gutta Percha, and Substitutes into the United States During April 1924

Crude Rubber: From—	Pounds	Long Tons	Dollars
Belgium	54,561		12,589
France	153,64?		33,189
Germany	17,884		6,159
Netherlands	76,767		14,093
England	3,747,370		907,739
Canada	56,716		13,215
Nicaragua	1,838		267
Panama	100		12
Mexico	178,408		31,904
Brazil	2,200,698		328,925
Chile	36,619		10,725
Colombia	8,374		1,647
Ecuador	3,248		812
Peru	122,617		31,583
Venezuela	385,492		71,609
British India	188,900		54,419
Ceylon	7,827,538		1,971,419
Straits Settlements	54,393,621		12,988,923
Java and Madura	7,404,889		1,933,312
Other Dutch East Indies	7,986,273		2,072,671
Hongkong	112,004		27,457
Other French Africa	85,415		19,122
Crude Rubber—Total	85,042,981	37,966	20,531,821
	1923		
Total Imports Crude Rubber for the month of April	31,062 long tons		
	1923		1924
Total Imports Crude Rubber for the 4 months ending April 30th	124,555 long tons		112,120 long tons

The following figures should be added to the statistics on Guayule for the month of March, 1924:

Pounds	Dollars
100,000	20,809

April, 1924

	Pounds	*Dollars*
Jelutong or Pontianack	1,580,963	166,689
Balata	44,462	25,604
Gutta Percha	20,758	8,803
Guayule	108,600	19,234
Other crude, scrap and reclaimed	1,434,410	64,318
Total Unmanufactured (including Crude Rubber Total)	88,232,174	20,816,469

Rims Inspected and Approved during March and April, 1924

Size	March Number	March Pct.	April Number	April Pct.
Clincher Rims.				
26 x 3	7,305	0.3	5,200	0.2
28 x 3	6,400	0.2	6,140	0.3
30 x 3	73,821	2.8	70,381	3.0
30 x 3½	1,067,574	41.8	1,081,945	45.7
31 x 4	167,077	6.4	63,177	2.7
Straightside:				
27 x 3½	....	..	582	0.0
28 x 3½	....	..	204,246	8.6
29 x 3½	....	..	6,250	0.3
30 x 3½	460,792	17.6	300,217	12.7
32 x 3½	6,980	0.3	11,480	0.5
28 x 4	65,502	2.5	81,024	3.4
29 x 4	113,810	4.3	87,615	3.7
30 x 4	32	0.0	4,706	0.2
31 x 4	575	0.0	10,303	0.5
32 x 4	201,334	7.9	163,095	6.9
33 x 4	38,685	1.5	7,476	0.3
29 x 4½	45,219	1.8	65,111	2.3
30 x 4½	8,322	0.3	26,719	1.2
31 x 4½	50	0.0	267	0.0
32 x 4½	160,658	6.3	117,155	5.0
34 x 4½	36,993	1.4	29,544	1.2
30 x 5	10,459	0.4	1,302	0.1
31 x 5	....	..	251	0.0
33 x 6	....	..	2,145	0.1
Truck:—				
30 x 5	....	..	1,321	0.1
34 x 5	....	..	15,875	0.7
32 x 6	....	..	1,505	0.1
36 x 6	....	..	4,695	0.2
34 x 7	....	..	251	0.0
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Imports of Rubber Tires Increase

The following table showing tire imports by quarters since January 1, 1923, shows that imports of tires and tubes into the United States increased remarkably in the first quarter of 1924.

1923—	Number	Value
First Quarter	289	$3,399
Second Quarter	5,690	25,147
Third Quarter	2,382	37,943
Fourth Quarter	818	7,528
1924—		
First Quarter	75,139	383,718
April	26,100	165,063

Most of the 1924 tire imports have come from France. Although the statistics cover casings, tubes, and solid tires for automobiles, motorcycles and bicycles, it is believed that the imports from France consist chiefly of clincher balloon casings size 31 x 4.4 and of inner tubes for same. The imports by countries for the first four months of 1924 are shown below:

Imports by Countries Since January 1, 1924

	France		England		Canada	
	Number	Value	Number	Value	Number	Value
January	18,001	$85,765	76	$1,702	64	$798
February	12,831	80,747	7	43	22	323
March	45,018	213,616	74	217	46	507
April	26,002	163,710	24	60	74	1,293

Domestic Exports of Rubber Reclaimed, Scrap and Old, from the United States by Countries During April 1924

Countries	Reclaimed 2011 Pounds	Reclaimed 2011 Dollars	Scrap and Old 2012 Pounds	Scrap and Old 2012 Dollars
Belgium	....	....	51,355	1,996
France	818	75	168,295	7,479
Germany	....	....	548,598	19,689
Italy	....	....	22,249	668
Netherlands	....	....	80,063	3,065
Spain	700	22	488,558	27,978
Sweden	6,000	423	59,094	3,006
England	63,982	7,024	136,224	5,430
Scotland	11,996	1,199	140,010	5,122
Canada	419,689	34,995	528,898	11,915
Mexico	350	47	....	....
Japan	2,000	280	6,000	69
Total	505,535	44,065	2,229,344	86,417

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Departments appear under the headings "Scientific Research;" "Technology and Industry;" "Prominent Men;" "Patents and Inventions;" and "Economical and Commercial Questions."

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The world export trade in rubber footwear increased from 15,500,000 pairs in 1922 to about 18,200,000 pairs in 1923. The American share of the trade in this period increased from 4,083,105 pairs to 5,269,666 pairs. In spite of the increase there were several important markets where our goods constituted no great share of the trade, owing to reasons given in full in the bulletin. The high price of American footwear is one of the principal obstacles to trade in some countries where the production of a cheaper line of products is a prerequisite to successful competition.

It was thought advisable to include data on rubber heels and soles even though they go through different channels than other rubber footwear in the process of distribution. Competitors of importance in rubber heels and soles of this country are the United Kingdom and Germany. The ease with which these products may be manufactured has led to manufacturing developments in these lines in all parts of the world. But all Latin American countries are rapidly increasing their purchases of rubber heels from the United States. In 1923 twenty countries took from 10,000 to 100,000 pounds of rubber heels and soles from this country. The three leading markets for this class of goods, Mexico, Cuba and the Philippine Islands, countries which follow the lead of the United States in footwear styles, took over 200,000 pounds each in 1923.

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Shipments of Rubber Manufactures from the United States to Non-Contiguous Territories During March 1924

	Alaska		Hawaii		Porto Rico	
	Quantity	Dollars	Quantity	Dollars	Quantity	Dollars
Boots and Shoes (Pairs)	4,848	15,792	....	....	6	19
Canvas Shoes with Rubber Soles (Pairs)	298	412	5,334	6,579	56,180	37,034
Druggists' rubber sundries (Pounds)	27	57	1,808	3,568	3,540	3,288
Automobile casings (Number)	143	1,932	5,123	78,203	4,206	54,749
Automobile inner tubes (Number)	91	253	4,862	9,983	2,779	6,999
Other tires (Number)	....	....	521	1,716	887	2,101
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Sweden	6,000	423	59,094	3,006
England	63,982	7,024	136,224	5,430
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MARKETS

Cottons and Fabrics

NEW YORK, June 2, 1924

Two weeks ago the market had a good undertone and an advance had been established, with special strength in May and July positions. A few unprotected short commitments in May were covered at the eleventh hour. Despite heavy tenders by those short of May option, the price held firmly to the end proving that, as had been said, the available supply was inadequate and was so strongly held that those shorts who made settlement by actual delivery had to pay high prices for the amount required.

The May deal has now passed into history, trading having come to an end on the 23d after tenders involving 60,000 bales. May did not go out in the New Orleans market until noon on the 26th.

July has now taken the place of May as reflecting spot cotton values, with August a close second, owing to the lateness of the new crop in the early sections and further depletion of the current season's remnant by consumption and exports of a month. A combination of small supplies, a fairly large, unprotected short interest, generally unfavorable weather and a continuance of large exports is tending to offset the effect of the complaints of American mills.

The new crop is practically all planted and becomes a livelier issue every day. Although there have been enough fair days of work to permit farm work of planting and replanting, the temperature has been entirely too cold to be conducive to the growth of young cotton. In many cases the germination of seed has been retarded in newly planted areas.

It is estimated that the world will need during the coming season an American crop of approximately 12,000,000 bales. Less conservative claims fix the amount as 12,500,000 bales. To maintain normal conditions a carry-over or reserve supply of at least 4,500,000 bales is needed. At the end of last season this carry-over was only 2,573,000 bales, which compared with a carry-over the season before last of 4,879,000 bales and a carry-over at the end of the 1921 season of 9,364,000 bales. Three inadequate American crops in succession have caused this shrinkage in the reserve supply.

The reserve supply question has become a vital one in New Orleans because the start of the present crop has given rise to the fear that it may also be inadequate. It is estimated by competent authorities in the South that should the exports continue at the present rate and should American mills continue to consume cotton at the rate current for some weeks, the carry-over may fall short of 1,600,000 to 2,000,000 bales.

Unfavorable and cold weather during the greater part of the month of May and with rain just prior to the date on which Government correspondents forward their reports to Washington, led traders to expect a comparatively low official condition average. This is expected to be lower than 71 reported a year ago, and considerably lower than the 10-year average of 72.8 on May 25. In some quarters it was predicted that the percentage condition would be the lowest in 20 years. For the cotton belt it was placed at 64.4 per cent—the lowest in May for 22 years and falling 4.6 points under the poor year of 1907. An average of the predictions of 14 market authorities placed the condition at 66.8.

Although there was little unanimity in condition predictions, all reported an acreage increase from 3 to 5 per cent. A few ventured a prediction on the probable yield based on the condition average shown May 25 but most declined to do so in the belief that with an uncertain and not yet fully planted acreage a crop guess was premature. They said that experience has demonstrated that the May 25 condition is no guide to exact condition but simply shows the start the crop has made. Crop guesses made ranged from 10,800,000 to 12,000,000 bales. The issuance of the condition report by the Government in line with predictions that have been made will justify the fear that the prospect of a yield of 12,000,000 bales is poor and will be the basis for the belief that cotton prices will continue high.

Although foreign producers have undoubtedly sought to take advantage of high prices, there is no reason to believe that they have succeeded to any appreciable extent in expanding their yields Both Egyptian and Indian cotton stocks are relatively low and there is at present no indication that the yield this season will add enough cotton to the foreign total to appreciably supply any deficiency that may exist in the American crop. Even though high prices may eventually lead foreign producers to increase their yields to the detriment of American cotton, this prospect is not in the near future.

During the week ended May 30 cotton exports dropped off 10,000 bales, it was reported by the Department of Agriculture. Exports for the week totaled 55,029 bales, compared with 65,479 bales for the previous week and 36,771 bales for the corresponding week in 1923.

Mills at Fall River, Mass. are beset by a price of raw cotton so high and a price of finished cotton goods so low that in many cases no margin is left for profit. There is an unconfirmed rumor that the entire Fall River cotton mill section, including 111 factories operated by 48 corporations, will shut down for July and August to reopen with a reduction of wages of at least 20 per cent. Much business usually handled by these mills is now going to the South.

Quotations of this date follow:

	Open.	High.	Low	Close	Close May 15
July	29.75	30.10	29.70	29.78	29.35
October	26.00	27.00	26.73	26.73	25.51
December	26.23	26.40	25.97	25.97	24.90
January	25.80	29.06	26.00	25.80	.....

COTTON EXPORTS INCREASED IN APRIL

Increasing exports of raw cotton but declining shipments of cotton manufacturers were reflected in the report for April issued recently by the Department of Commerce. As compared with the same month last year April exports of raw cotton showed an increase in value of nearly $9,000,000, but exports of cotton manufactures fell off by $2,500,000, shipments of cotton cloths declining by more than 2,000,000,000 square yards.

EXTRA STAPLE COTTON

Except for the increased interest in the new crop the extra staple cotton market showed litle change from the quiet condition that has prevailed in it for the past two months. Prices have changed but little, although there is a tendency in certain quarters to sell old crop holdings instead of carrying them into a new season. Prices of strict middling in grade and color, f.o.b., New Bedford follow:

1 1-8-inch	32	@—	cents
1 3-16-inch	33	@34	cents
1 1-4-inch	34	@—	cents
1 15-16-inch	35½	@—	cents

TIRE FABRICS

The market has been concerned with tire production curtailment. Although the situation is seasonable, it had been thought because of moderate buying previously that orders would continue to come on a moderate scale. Orders for the first half are running off the looms but few orders are being placed by tire manufacturers. One of the largest inquiries received was for 100,000 pounds. This was later reported to have been placed on a basis of 58 cents for 1¼ inch commercial cotton. Saks are plentiful and are being used in some high grade balloon tires but the use of Egyptians in balloon tire construction is more widespread. During the past fortnight inquiries have

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Chemicals and Compounding Ingredients

THE INDUSTRIAL CHEMICAL MARKET—NEW YORK, June 2, 1924—The market is quiet but chemical houses refuse to be influenced by either the political situation or the rumors of poor business. Inquiries have been numerous and there is some business being placed but factors report that it is necessary to work hard for it. An evener market is predicted in some quarters with the approach of summer. Demand usually falls off somewhat in the warm weather and this summer is not expected to be an exception. Prices are firm for actual spot price changes have been few. Present conditions in the industrial chemical market favor the small dealer as few orders have been received during the past fortnight for car load lots.

ACCELERATORS

Organic

Aldehyde ammonia, crystals	lb.	$ .90 @	.95
Aniline oil, drums	lb.	.17 @	.17½
Diphenylguanidine	lb.	1.10 @	1.15
Excellerex,	lb.	.40 @	.45
Formaldehyde-Aniline	lb.	.50 @	—
Hexamethylene-tetramine	lb.	.82 @	.85
Paraphenylenediamine	lb.	1.35 @	1.40
Super-Sulphur No. 1	lb.	.50 @	.60
Super-Sulphur No. 2	lb.	.25 @	.35
Tetramethyl— Thiuramdisulphide	lb.	6.00 @	—
Thiocarbanilide, kegs	lb.	.27 @	.29
Vulcocene	lb.	.35 @	—

Inorganic

Lead, sublimed blue	lb.	.11 @	—
Lead, white	lb.	.10¼ @	—
Litharge, domestic	lb.	.11½ @	—
Lime, Superfine	lb.	.02 @	.04
Magnesia, calcined,			
light,	lb.	.24 @	.26
extra light	lb.	.45 @	.60
heavy	lb.	.08 @	.08½

COLORS

Blacks			
Arrow "Aerfloted"	lb.	.09½ @	.13
Bone Black	lb.	.05½ @	.07½
Carbon "	lb.	.09 @	.12
Drop "	lb.	.07½ @	.10
Ivory "	lb.	.15 @	.45
Lamp "	lb.	.12 @	.40
Micronex	lb.	.09 @	.14
Blues			
Cobalt	lb.	.21 @	.26
Prussian	lb.	.38 @	.40
Ultramarine	lb.	.08 @	.35
Browns			
Iron oxide	lb.	.02¼ @	.06¼
Sienna, Italian,	lb.	.06 @	.14½
Umber, Turkey,	lb.	.04 @	.04½
Vandyke, domestic	lb.	.03½ @	.04
Greens			
Chrome, light	lb.	.30 @	.31
medium	lb.	.32 @	.35
dark	lb.	.35 @	.38
Commercial	lb.	.10½ @	.11½
Reds			
Antimony			
crimson, 15/17 F.S.	lb.	.40 @	.42
sulphur free	lb.	.45 @	.60
golden, 15/17 F.S.	lb.	.20 @	.22
calcium and sulphur free	lb.	.40 @	—
red sulph.15-17 F.S.	lb.	.15 @	.16
Indian, English	lb.	.11 @	.12
Para toner	lb.	.95 @	1.00
commercial	lb.	.15 @	.18
Red Oxide, reduced	lb.	.08 @	.12
pure	lb.	.12 @	.14
Toluidine toner	lb.	2.00 @	2.10
Venetian red	lb.	.02 @	.05½
Vermillion, quicksilver,			
English	lb.	1.35 @	1.45
domestic	lb.	.15 @	.25
Whites			
Albalith	lb.	.07 @	.07¼
Aluminum bronze	lb.	.55 @	.60
Lithopone Azolith	lb.	.06¼ @	.06¾
Zinc Oxide—American Process			
XX red	lb.	.07⅞ @	.08⅛
Kadox,			
black label, bags, cars		.11¾ @	.12
blue " " "		.10¾ @	.11
red " " "		.09¾ @	.10
American Azo:			
ZZZ (lead free)	lb.	.07¾ @	.08¼
ZZ (under 5 per cent leaded)	lb.	.07 @	.07½
Z (8-10 per cent leaded)	lb.	.06¾ @	.07¼
Zinc Oxide—French Process			
White seal	lb.	.12 @	—
Green seal	lb.	.10¾ @	—
Red seal	lb.	.09¾ @	—
Yellows			
Chrome, light		.18 @	.18½
dark and medium	lb.	.18 @	.18½
Cadmium Sulphide	lb.	1.75 @	2.50
Ocher, French	lb.	.01¾ @	.03
domestic	lb.	.02 @	.02½

COMPOUNDING INGREDIENTS

Aluminum Flake	ton	25.00 @	40.00
hydrate light	lb.	.17 @	.18
Ammonia carbonate,	lb.	.13 @	.14½
Asbestine	ton	13.00 @	15.00
Barium carbonate,	ton	68.00 @	70.00
Barium Dust	lb.	.05 @	.06
Barytes southern off-color,	ton	15.00 @	18.00
Western prime white	ton	22.00 @	23.00
Imported	ton	28.00 @	33.00
Basofor	lb.	.04¼ @	—
Blanc fixe, dry f.o.b. works	lb.	.04 @	.04½
Carrara filler	lb.	.01½ @	.02
Chalk, precipitated,			
extra light	lb.	.04¼ @	.05
heavy	lb.	.03¼ @	.04
Clay, China, domestic,	ton	12.00 @	15.00
Dixie	ton	22.00 @	32.00
Blue Ridge	ton	12.00 @	25.00
Fossil flour	lb.	.03 @	.05
Glues, extra white	lb.	.22 @	.30
medium white	lb.	.20 @	.26
cabinet	lb.	.18 @	.28
cabinet low grade	lb.	.15 @	.18
common bone	lb.	.11 @	.14
Graphite flake, bbls.	lb.	.06½ @	.12
amorphous	lb.	.04 @	.10
Infusorial earth, powdered	ton	60.00 @	—
bolted	ton	70.00 @	—
Liquid latex	gal.	1.25 @	1.35
Magnesia, carbonate	lb.	.08¼ @	.08¾
Mica, powdered	lb.	.07 @	.15
Rotten Stone (powdered)	lb.	.02½ @	.04½
Soapstone, powdered	ton	15.00 @	22.00
Starch, powdered	cwt.	3.27 @	3.54
Talc, domestic	ton	15.00 @	22.00
French	ton	20.00 @	25.00
French, high grade	ton	40.00 @	45.00
Italian	ton	50.00 @	55.00
Terra Alba	cwt.	1.75 @	1.90
Tripoli, white	lb.	.02 @	.02¼
Whiting, commercial	cwt.	.85 @	1.15
gilder's bolted	cwt.	1.10 @	1.20
English cliffstone	cwt.	1.50 @	—
Paris whiteAmerican	cwt.	1.25 @	1.50
Quaker	ton	13.00 @	15.00
Sussex	ton	8.00 @	16.00
Wood pulp XXX	ton	35.00 @	—
" " X	ton	25.00 @	—

MINERAL RUBBER

Genasco (factory)	ton	50.00 @	52.00
Granulated M.R.	ton	50.00 @	54.00
Hard hydrocarbon	ton	30.00 @	40.00
Soft hydrocarbon	ton	30.00 @	40.00
320/340 M. P. hydrocarbon (c. l. factory)	ton	45.00 @	50.00
300/310 M. P. hydrocarbon (c.l. factory)	ton	40.00 @	45.00
Synpro, granulated, M. R. (factory)	ton	55.00 @	70.00

SOFTENERS

Acids			
Acetic, 28%	cwt.	3.12 @	3.37
Cresylic, 97%	gal.	.65 @	.70
95%		.63 @	.68
Muriatic, 20%	cwt.	.90 @	1.00
Nitric, 36 degrees	cwt.	4.25 @	4.50
Sulphuric, 60 degrees	ton	9.00 @	10.00
66 degrees	ton	14.00 @	15.00
Tartaric, crystals	lb.	.30 @	—
Alkalies			
Caustic soda, 76%	cwt.	3.76 @	3.91
Soda ash, 58%	cwt.	2.04 @	2.19
Oils			
Castor, No. 3, bbls.	lb.	.15½ @	.16
Chinawood, bbls.	lb.	.14¼ @	.14¾
Corn, crude, bbls.	lb.	.10½ @	.11
refined	lb.	.11¾ @	.12
Cottonseed, crude		8.00 @	—
Glycerine,	lb.	.16½ @	.17
Linseed, domestic	gal.	.88 @	.89
Palm, Niger	lb.	.06½ @	.06⅝
Lagos	lb.	.07⅛ @	.07¼
Peanut,domestic,crude	lb.	.12½ @	—
Petroleum, amber	lb.	.04½ @	—
dark, amber	lb.	.04 @	.04½
Pine, steam distilled	lb.	.60 @	.65
Rapeseed, refined	gal.	.80 @	.84
blown	gal.	.98 @	1.00
Rosin, first rectified	gal.	.40 @	.42
second rectified	gal.	.45 @	.47
Soya Bean		12⅛ @	—
Tar, commercial	gal.	.30 @	.32
Resins and Pitches			
Cumar resin, hard	lb.	.09 @	.10
soft	lb.	.09 @	.10
Parra M.R.	lb.	.06 @	.07
Tar Retort	bbl.	10.50 @	11.00
kiln burned	bbl.	10.50 @	11.00
Pitch, Burgundy	lb.	.05 @	.06
coal tar	gal.	.06 @	.08
pine	bbl.	5.50 @	5.75
Rosin, grade K	bbl.	6.15 @	—
Shellac, fine orange	lb.	.56 @	.57
Solvents			
Acetone, drums	lb.	.15 @	—
Alcohol, denatured,			
No. 1 bbls.	gal.	.52½ @	.56½
Benzol, 90%	gal.	.23 @	—
pure		.24 @	.25
Carbon bisulphide	lb.	.06 @	.07
tetrachloride	lb.	.07 @	.07½
Dimethylaniline	lb.	.36 @	.38
Motor gasoline,			
steel bbls.	gal.	.20 @	—
Naptha, V. M. & P.	gal.	.19 @	—
Toluene	gal.	.31 @	—
Turpentine, spirits	gal.	.89 @	.90
wood	gal.	.85 @	.87
Waxes			
Bayberry	lb.	.21 @	.22
Beeswax	lb.	.43 @	.45
Carnauba, No. 1	lb.	.43 @	.45
Ceresin, white	lb.	.10 @	.11
Montan, crude	lb	.08 @	.06½
Ozokerite, black	lb.	.28 @	.29
green	lb.	.30 @	.31
Paraffine	lb.	.04½ @	.04⅝
Sweet wax	lb.	.12 @	—

SUBSTITUTES

Black	lb.	.09 @	.14
White	lb.	.10 @	.16
Brown	lb.	.10 @	.15
Brown factice	lb.	.09 @	.16
White factice	lb.	.09½ @	.16

VULCANIZING INGREDIENTS

Black hyposulphite	lb.	.17 @	.20
Sulphur Chloride (drums)	lb.	.04 @	.05
Sulphur flour			
Commercial bags,	cwt.	1.35 @	1.70
" bbls.	cwt.	1.70 @	—
Superfine, bags,	cwt.	2.00 @	2.40
" bbls.	cwt.	2.40 @	—
100% pure, refined, bags	cwt.	2.25 @	2.55
bbls.	cwt.	2.50 @	—

Crude Rubber

NEW YORK, June 2, 1924

The three day respite over the Memorial week-end was reflected in today's crude market. This morning very little activity was reported and as tomorrow is a holiday in London little trading is expected in either market before the middle of this week. Although last Thursday's opening indicated a firm rubber market over the holidays, a lapse took place before the end of the day and first latex dropped a quarter cent to 19¼. Saturday saw little or no trading, a few dealers opening their offices just to keep in touch with London and Singapore markets.

The break to 17⅜ cents on the 19th of May brought a flurry of buyers, both for spot and for July-September delivery but this activity was short lived. As soon as the rise took place, manufacturers sought cover and have not been enticed to buy since. Buying still follows in the same hand-to-mouth fashion that has prevailed for months and the trade sees little immediate hope of the rubber manufacturers changing their policy in this respect. This let-up is undoubtedly seasonal and is not the result of any lower prices which may be expected.

Many in the trade state that there has been over-production and attribute the recent break to this fact but lack of demand only has caused the present accumulation of stock in London and not over-production, state others.

Rumors of the existence of large hidden stocks in the Far East and the abandonment of the Stevenson plan of restriction have been common lately but no stock is taken in such rumblings.

After the relapse which brought crude down to the lowest level in eighteen months, a little of the lost ground was gained on the 20th when prices rose ⅜ cents. Trading however remained irregular, buyers evidently again expecting lower quotations. Recovery continued for several days until on the 24th ribbed smoked sheets were quoted at 19¼ cents for spot and 19⅜ for July position. Interest was manifested in forward positions by tire manufacturers who placed orders at this price and later placed others at 19½.

London caused a slight break on the 26th and 27th and tire manufacturers again bought rubber smoked sheets at 19⅛ and 18⅞ respectively on the above days. Buying still remained spotty and for nearby positions exclusively.

In the middle of last week the favorable Sterling exchange induced some business for July-September arrivals. Lateness of arrivals caused some uneasiness in spots. Declines on the day before the holiday caused uncertainty in the local market, a feeling held over until today.

Quotations on the whole have shown a downward tendency in the past few weeks and it is predicted that the low of 17⅜ cents will be bettered within the next months when the industry lets up in real mid-summer fashion. London was quiet and Singapore steady today. Quotations follow:

NEW YORK MARKET

Plantations—			
Ribbed Smoked Sheets:			
Spot	.18¾	@	—
June	.18¾	@	—
July-September	.19¼	@	—
Oct.-Dec.	.19¾	@	—
First Latex, crepe, spot	.19⅝	@	—
Amber Crepe No. 1, spot	.19	@	—
" " No. 2,	.18¾	@	—
" " No. 3,	.18¼	@	—
" " No. 4,	.18	@	—
Brown Crepe, Rolled	.17½	@	—
" " Clean, thin	.18	@	—
" " Specky	.17¾	@	—
Scrap, Colombo No. 1	.14½	@	—
Pontianac—			
Prime Pressed	.08	@	—
Palembang	.07	@	—
Bangermassin	.08	@	—
Sarawak	.06	@	—
Paras—			
Up-river Fine	.21½	@	—
" Medium	.19½	@	—
" Coarse	.14½	@	—
Islands, fine	.18½	@	—
" medium	.17½	@	—
" coarse	.10	@	—
Cameta	.14½	@	—
Madeira Fine	.23	@	—
Acre Bolivian, fine	.21¾	@	—
Cut Beni Bolivian, fine	.22½	@	—
Tapajos, fine	.17½	@	—
Xingu Ball	.13	@	—
Caucho Ball—			
Upper, shipment	.14½	@	—
Centrals—			
Central, scrap, prime	.13½	@	—
Corinto, scrap	.13½	@	—
Esmeralda, sausage	.13½	@	—
Guayule, w and d	.23	@	—
Africans—			
Benezuela, No. 1	.12	@	—
" No. 2	.11	@	—
Congo, upper, black	.18	@	—
" " red	.17½	@	—
Kassai, Prime Red	.16¾	@	—
Balata—			
Black, Columbia	.50	@	.52
" Caidad	.67	@	.68
Surinam, sheet	.70	@	.71
Gutta Percha—			
Siak	.16	@	.17
Red Macassar	2.80	@	3.00
Chicle—			
Mexican, Yucatan	.65	@	.67

LONDON MARKET

Standard Ribbed Smoked Sheets—	
Spot	10⅜d
July	10½
July-Sept.	10⅝
Oct.-Dec.	11

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—	
Spot	9½d
June	9⅝
July-Sept.	10
Oct.-Dec.	10¼

Reclaimed Rubber

NEW YORK, June 2, 1924

Reclaimers are optimistic as to the future despite present conditions. Manufacturers have let down appreciably in production and are not using reclaimed stock in any large quantities. This does not indicate however that reclaims are not moving. Stocks in the hands of manufacturers are not large and buying is in a hand-to-mouth fashion with improvement expected within the next month or so. Quotations are somewhat lower than in our last report, most items being listed at ¼ to ¾ cents lower. Prices are as follows:

Floating Tube	.14	@	.14¼
Friction, uncured	.18½	@	.19
Boots and Shoes (unwashed)	.09	@	.09¼
Boots and Shoes (washed)	.12½	@	.13
Mechanical	.09	@	.09½
Hose	.09½	@	.10
Tires, truck	.07¼	@	.08
Tires, auto, black	.08½	@	.09
Black (washed)	.10	@	.10½
White	.13¼	@	.13¾
Dark Gray	.09½	@	.09¾
Light Gray	.11	@	.11¼

Scrap Rubber

NEW YORK, June 2, 1924

Scrap remains depressed. The condition which has prevailed for the past few months became even more intensified in the few weeks just gone by and scrap dealers have experienced a period of inactivity which indicates that the bottom has been reached. There has been some trading, small in quantity, and prices have remained unchanged. Better quotations are expected by scrap dealers in August and September. Prices are nominally as follows, F.O.B. New York:

Auto tire peelings	.00½	@	.00⅝
Standard White auto ....ton	13.00	@	14.00
Mixed auto .....ton	9.00	@	10.00
Bicycle tires .....ton	6.00	@	7.00
Clean solid truck tires	.00½	@	.00⅝
Boots and shoes	.01⅝	@	.01¾
Arctics, untrimmed	.00⅝	@	.00¾
Arctics, trimmed	.00⅞	@	.01
Inner tubes, No. 1	.03⅜	@	.03½
Inner tubes, compounded	.01¾	@	.02
Inner tubes, red	.01¾	@	.01⅞
Battery jars, clean hard rubber	.00⅞	@	.01
Air Brake Hose .....ton	10.00	@	11.00
Rubber Hose .....ton	7.00	@	8.00

Chemicals

Sulphur—The market has been quiet with business of a routine character. Prices are steady and withdrawals are holding up fairly well for the flour, the superfine and the commercial. Sulphur chloride is dull and, since our last report, prices have fallen to .04 to .05 cents per pound (in drums).

Antimony—Although stocks are small, demand is not as active and prices are less firm. Movements have been merely routine in character. Crimson is quoted 40 to 42 cents a pound, golden 20 to 22 cents and red, 16/17 per cent, 15 to 16 cents.

Acetic Acid—Production has been fairly well maintained and there is no scarcity but demand is routine with the inevitable result that the market is easier in tone. Factors in this acid expect that demand will continue routine throughout the summer months. As the price of acetate of lime has not changed acid manufacturers have made no change in their quotations which are on the basis of $3.12 to $3.37 for the 28 per cent in barrels per cwt.

Lithopone—Contract deliveries continue to take the current production of works and prices are unchanged. Imported lithopone is also meeting a fairly good demand at steady prices. Prices, in car lots, 6⅝ to 6⅞ cents.

Cotton Markets

(Continued from Page 186)

been for quantities between 5,000 and 10,000 pounds for prompt or nearby delivery, and larger amounts for June, July and August delivery.

CORD FABRICS

Combed Sakellarides		Nominal		
Combed Peeler	lb.	Nominal		
Carded Peeler	lb.	.54	@	.57
Combed Egyptian uppers	lb.	Nominal		
Carded Egyptian uppers	lb.	.61	@	.63

SQUARE WOVEN

17¼-ounce Egyptian uppers, combed	lb.	Nominal		
17¼-ounce Egyptian uppers, carded	lb.	.60	@	.62
17¼-ounce Sakellarides, combed	lb.	Nominal		
17¼-ounce Peeler, carded	lb.	.53	@	.56

Ducks—Inquiry has been good but the market has been quiet. In making commitments consumers are keeping close to actual needs. Trading is being done on a restricted scale and shows a decline even when compared with the limited amount of business done heretofore. Prices show little change as the mills refuse to make further concessions and this fact has had a tendency to stabilize prices. Spot and future cotton prices have been so far apart that a lack of confidence in values was apparent. A better undertone prevailed during the last few days.

Burlaps—The market has been dull and weak at times during the past two weeks with little feature. A holiday in Calcutta on the 24th and two holidays here did not tend to create interest in the market. Stocks of spot and afloat goods are so scarce that any increase in demand will result in higher prices. Little interest has been manifested in heavies or odd constructions.

SHEETINGS

40-inch 2.50-yard	yd.	.16¼	@	—
40-inch 2.85-yard	yd.	.14⅛	@	—
40-inch 3.15-yard	yd.	.14⅜	@	—
40-inch 3.60-yard	yd.	.12½	@	—
40-inch 3.75-yard	yd.	.10¾	@	—
40-inch 4.25-yard	yd.	.09⅞	@	.10

DUCKS

Belting	lb.	.43	@	.46
Hose	lb.	.43	@	.46
Enameling	lb.	.44	@	.48
Shoe Ducks	lb.	.48	@	.52
Single filling		.21½	@	.23
Double filling	lb.	.23	@	.25

BURLAPS
(Carload Lots)

7½-ounce 40-inch		5.60	@	—
8 -ounce 40-inch		5.65	@	5.75
10 -ounce 40-inch		7.65	@	—
10½-ounce 40-inch		7.75	@	—

DRILLS

37-inch 2.75-yard	**yd.**	**.14¼**	**@**	**—**
37-inch 3.00-yard	yd.	.13¾	@	—
37-inch 3.25-yard	yd.	.12¾	@	.13
37-inch 3.50-yard	yd.	.12	@	—
37-inch 3.95-yard	yd.	.10¼	@	.10½

OSNABURGS

30-inch 7-ounce		.15	@	.15¼
40-inch 7-ounce		.16¼	@	.16½

Rubber Patents

MAY 13, 1924

1,493,511. Process of making articles of hard-rubber dust. Claude E. Wing, Flushing, N. Y., assignor to American Hard Rubber Co., New York, N. Y.

1,493,658. Automobile tire, rim, and fastening means. James H. Wagenhorst, Akron, Ohio.

1,493,672. Tire tube. Albert Ennis Henderson, Toronto, Can.

1,493,674. Pneumatic tire casing for motor vehicles. Ernest Hopkinson, New York, N. Y.

1,493,702. Inner tube for tires. Martin Rasmussen, Racine, Wis.

1,493,715. Pneumatic pressure gauge. Park E. Welton, Cuyahoga Falls, Ohio, assignor to Tiregage Valve Corp., Charleston, W. Va.

1,493,715. Pneumatic pressure gauge. Park E. Welton, Cuyahoga Falls, Ohio, assignor to Tiregage Valve Corp., Charleston, W. Va.

1,493,729. Pneumatic incline. Frank Brown, Indianapolis, Ind.

1,494,198. Inner tube for tires. Walter J. Szczepaniak, Marche, Ark.

MAY 20, 1924

1,494,337. Tire protector. Michael A. Boylan, Omaha, Neb., assignor to Boylan Tire & Rubber Co., Omaha, Neb.

1,494,592. Vehicle wheel. Emil Deister, Fort Wayne, Ind.

1,494,615. Tire mold. James L. Martin, Colorado Springs, Col.

1,494,621. Wheel tire. James Stuart Ogilvie, Wood Green, Eng.

1,494,633. Artificial foot. James Francis Rowley, Chicago, Ill.

1,494,709. Machine for inflating hollow rubber articles. Fred Thomas Roberts, Philadelphia, Pa.

1,494,723. Self-stripping mold and method of making. Albert Y. Tucker, Mount Vernon, N. Y., and Isaac A. Watrous, Stratford, Conn., assignors to Revere Rubber Co.

1,494,797. Tire. Louis W. Nimschke, Old Bridge, N. J.

1,494,809. Dental syringe. Benjamin F. Sahr, Hutchinson, Minn.

1,494,852. Resilient wheel. Hugh C. Lord, Erie, Pa.

1,494,888. Rim for elastic wheel tires. Frederick Eustace Clark, Huntington, W. Va.

1,494,946. Rubber heel. William Bernstein, Jamaica Plain, Mass., assignor to Panther Rubber Manufacturing Co., Stoughton, Mass.

1,494,993. Auto tire winder. Frederick Coates, Cincinnati, Ohio, assignor to Federal Products Co., Cincinnati, Ohio.

1,495,004. Resilient wheel. Paul de Pfyffer, Kelowna, British Columbia, Can.

1,495,009. Vulcanizing apparatus. Walter Kirkbank Fletcher and John Rushmer, London, Eng.

1,495,083. Cushion tire. Frederick A. Krusemark, Roanoke, Va., assignor by mesne assignments to L. A. Clark, Roanoke, Va.

New Incorporations

DELAWARE

Tompkins Moulded Rubber Co. $300,000. Manufacturing. Principal office, Wilmington, Del.

B. & M. Rubber Co., Inc. $250,000. Manufacturing. Incorporators, Henry E. Watkins, Rose N. Bookman, Oscar R. Cassel. Principal office, New York, N.Y.

MASSACHUSETTS

I. Brown & Son, Inc. Capital $45,000 and 100 shares without par value. Retail rubber business. Incorporators, Isaac Brown, Max Brown, Cecil L. Brown and Rebecca Brown. Principal office, Springfield, Mass.

MacLaughlin-Conway, Inc. $200,000. Leather and rubber goods. Incorporators, Charles D. MacLaughlin and Charles E. Conway, both of Lynn, Mass.; Alfred J. Sweet, of Lewiston, Me. Principal office, Lynn, Mass.

NORTH CAROLINA

Triangle Rubber Supply Corp. $25,000. Incorporators, C. H. Moneypenny, C. A. Crutchfield and Mrs. C. A. Crutchfield. Principal office, Greensboro, N. C.

NEW YORK

T. M. G. Rubber Specialty Corp. $5,000. Incorporators, P. Senner, M. F. Heiz, R. E. Tuttle. Principal office, New York, N. Y.

Ultimate Tire & Rubber Corp. $50,000. Incorporators, P. Catalano, M. J. Orr. Principal office, New York, N. Y.

Miller-Gross Rubber Co. $10,000. Incorporators, H. T. and B. F. Miller, W. A. Gross. Principal office, Troy, N. Y.

Non-Skid Aireless Tire Co., Inc. $250,000. Incorporator, Otto Ribarsch, 4848 Broadway, New York, N. Y.

NEW JERSEY

Holbrook Tire & Rubber Co., Inc. $125,000. Retail tire business. Principal office, 800 Broad St., Newark, N. J.

OHIO

Central States Rubber Co. $1,000. Incorporators, A. H. Morrill and G. A. Ginter. Principal office, Cincinnati, Ohio.

Cities Tire & Rubber Co. $10,000. Incorporators, Walter R. Kreinheder, and Ward H. Perry. Principal office, Akron, Ohio.

Trade Marks

May 6, 1924

(Subject to opposition within 30 days of above date)

DESIGN (consisting in part of the letter "N" transversed by a fork of lightning)—No. 179,816. National Metal Molding Co., Pittsburgh, Pa. Rubber-covered wire and cables, etc.

AKRONETTE—No. 191,476. Jacob I. Aronson, doing business as Aronson Cont Co., Boston, Mass. Rubberized raincoats, topcoats, and overcoats.

DESIGN (consisting of an octagon containing a large "T" and the word "Tyer")—No. 192,447. Tyer Rubber Co., Andover, Mass. Rubber bands.

DESIGN (consisting of an octagon containing the corporate title and address of the company, a large "T" and the word "Tyer")—No. 192,448. Tyer Rubber Co., Andover, Mass. Bathing shoes and caps.

DESIGN (identical to that described above)—No. 192,450. Tyer Rubber Co., Andover, Mass. Cigar tips and tobacco pouches of rubber or rubber compounds.

TEN STRIKE—No. 192,537. Hurley Shoe Co., Rockland, Mass. Shoes made of leather, rubber, and fabric and combinations of leather and rubber, rubber and fabric, leather and fabric, and leather, rubber, and fabric.

CHALLENGER—No. 192,923. New England Mills Co., doing business as Challenger Rubber Manufacturers, Chicago, Ill. Automobile tires of rubber, cord and fabric.

(Not subject to opposition)

FLASH (with representations of lightning flashes)—No. 183,900. Peter Barbieri, Perth Amboy, N. J. Rubber soles and heels.

MAY 13, 1924

(Subject to opposition within 30 days of above date)

SMART SET—No. 170,637. Goldenberg's, Washington, D. C. Rubber cloth, rubber mats, rubber sheeting, etc., etc.

WHALITE—No. 170,081. West American Rubber Co., 440 North Ave., 19, Los Angeles, Cal. Machinery packing comprising rubber and fiber.

DESIGN (consisting of an octagon containing the corporate title and address of the company, a large "T" and the word "Tyer."—No. 188,256. Tyer Rubber Co., Andover, Mass. Druggists' and surgical rubber goods.

DESIGN (consisting of concentric circles crossed by a band, including title, etc. of the company)—No. 192,220. T. O. Probey Co., Inc., Washington, D. C. Automobile tires made chiefly of rubber.

DOUGHNUT—No. 192,462. Herbert Vernet Whitlock, Elizabeth, N. J. Pneumatic and non-pneumatic tires and inner tubes for pneumatic tires.

PARAMOUNT—No. 194,060. J. C. Haartz Co., Boston, Mass. Piece goods made wholly or in part of cloth and rubber.

(Not subject to opposition)

TONSOR—No. 184,045. American Hard Rubber Co., Hempstead and New York, N. Y. Hard rubber combs.

OUT SIZES—No. 184,057. W. B. Coon Co., Rochester, N. Y. Shoes made of leather, rubber or a combination of said materials.

MAY 20, 1924

(Subject to opposition within 30 days of above date)

WORLD—No. 186,106. Continental Tire Corp., Chicago, Ill. Automobile tire tubes.

SURETY-SIX—No. 191,079. Max Department Stores Co., St. Louis, Mo. Shoes made of leather, fabric, rubber, and combinations thereof.

CARMEN—No. 191,460. George S. Abelson, doing business as Carmen Novelty Co., Chicago, Ill. Vanity cases made of silk and rubber.

EXTENSOR—No. 193,116. North Eastern Rubber Co., Elizabeth, N. J. Flaps for automobile rims.

DIRIGIBLE—No. 193,607. McKone Tire & Rubber Co., Millersburg, Ohio. Tires made of rubber and fabric.

THUNDERBOLT—No. 193,832. Frederick J. Hagerling, St. Louis, Mo. Tire patches.

THEBESTOS—No. 195,303. Republic Rubber Co., Youngstown, Ohio. Brake linings.

CHIEF'S PRIDE (with design)—No. 194,993. B. F. Goodrich Co., New York, N. Y. Hose made of rubber reenforced with fabric.

(Not subject to opposition)

YOUNG'S—No. 184,443. Young Shoe Co., Los Angeles, Cal. Leggings, boots, shoes, slippers, and spats of leather, rubber, fabric, or combinations.

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